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JULY 1956

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PUBLISHED 1/6 MONTHLY

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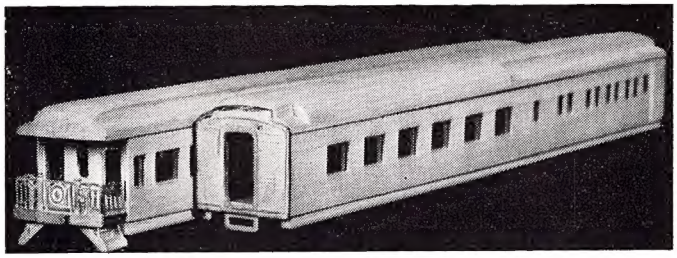

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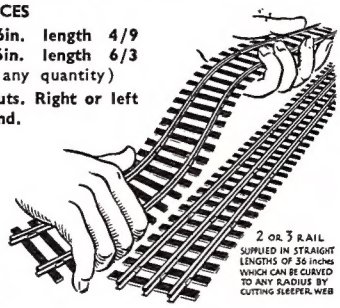

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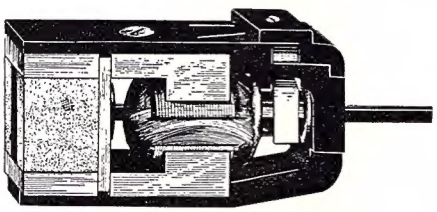

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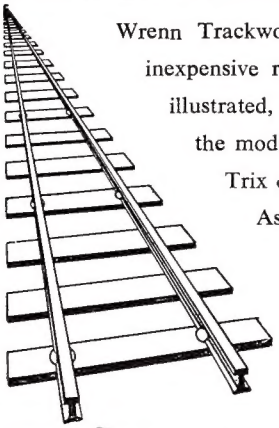

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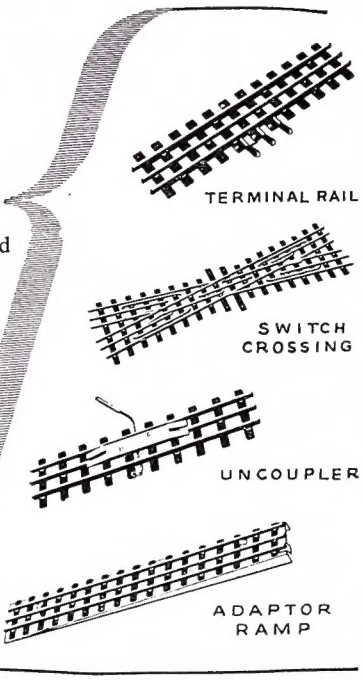

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RAILWAY MODELLER

For the Average Enthusiast Specializing in Small Scale Railway Modelling

VOL. 7. No. 69. JULY 1956

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NEXT MONTH

Peter Denny describes how to build a lifting viaduct to span a garden path, and John L. Ray explains how the Crewchester Railway establishes its timetable.

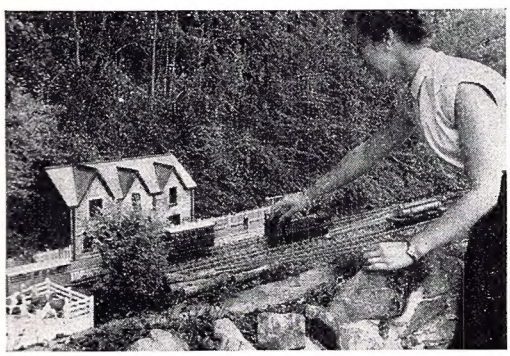
THE LOBBY

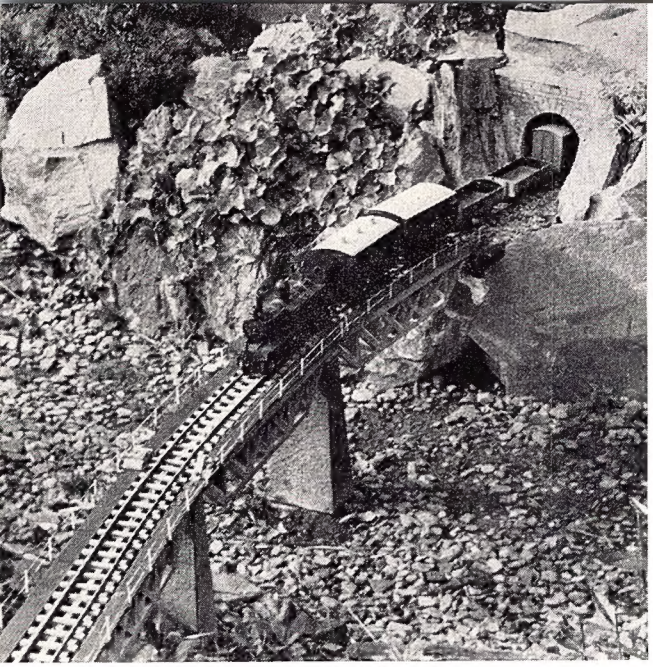
OBVIOUSLY at this time of the year the garden railway comes into its own, for the warmer days and longer evenings enable operation to be carried out under optimum conditions. Our railway of the month is thus particularly appropriate, describing as it does Peter Denny's 1n3 garden layout. Many of our readers will, of course, associate Peter Denny's name with his "EM" gauge Buckingham Branch, and before anyone wonders what may have happened to this fascinating line we would assure readers that it is still in being and running as well as ever. However, Peter decided to take the opportunity offered by a move providing a large garden to fulfil an old ambition and work in a larger scale. We feel sure that all will agree that the inimitable Denny touch has remained despite the change of size.

To many of our readers, the term 1n3 may seem a trifle strange, and vaguely reminiscent of chemical formulae. It is, however, a remarkably concise and flexible method devised by American enthusiasts to describe any narrow-gauge model railway so as to define both scale and gauge. As readers are probably aware, narrow-gauge lines fall into two main groups, 3ft. and 2ft. gauges, and therefore any description must indicate which group is being followed—"narrow gauge" alone is hardly sufficient. The first figure indicates the scale chosen—"1," "O," "OO," etc.; "n" indicates narrow gauge, and the third number indicates the prototype gauge in feet. Thus a 4mm. scale 3ft. gauge line is OOn3, while 1n3 indicates a 10mm. scale model of a 3ft. gauge railway.

COVER PICTURE

Shunting at Harrowbarrow on Peter Denny's 1n3 Tamar Valley Light Railway; in charge of operations, Doris Freezer.





Railway of the Month

BUILDING THE TAMAR VALLEY LIGHT RAILWAY

by P. B. Denny

A Garden Railway in 1n3

A mixed train emerges from Rockery tunnel and crosses the lifting viaduct.

CORNWALL, as many holiday-makers know, has its attractions, and when the writer found himself in possession of a small Cornish garden the temptation to make it even more attractive by the addition of a model railway was too great to resist. Funds were not plentiful, however, so it was decided to build a 3ft. narrow-gauge line to a scale of 10mm. to the foot, using a gauge of 32mm.—2mm. out, but not worth worrying about. The reasons for this choice were, first, that scenic effects which have to stand up to the weather could be built more robustly in 10mm. scale; secondly, this gauge enabled standard "O" gauge wheels to be used, including the Hornby plastic wheels, which can be purchased for a very modest sum; and thirdly, advantage could be taken of Brittains farm series for personnel and the scenic side. In order to get things moving fairly quickly a start was made with clockwork as the motive power and it was found that a very realistic and comparatively cheap track could be built from Fenlow Products' $\frac{3}{16}$in. section flat-bottom alloy rail (see RAILWAY MODELLER, August 1955).

Since the writer has always been interested in the scenic side of railway modelling, one requirement for the garden railway was that it must look right. This would mean, of course, taking full advantage of the natural conditions found out of doors and it more or less stipulated that the line should be at ground level. The writer had no intention, however, of getting backache in pursuit of his hobby, so a careful survey of the garden site was undertaken to find a practical compromise. Time spent in careful planning is generally well paid, and the T.V.L.R. has been no exception. Fig. 1 shows a plan of the garden, and it was found after examination that the ground had a gentle slope downwards from the north to the south and also from the east to the west. Since clockwork was to be the motive power it was highly desirable that gradients should be avoided. The problem, therefore, was to construct a level site for the line, giving a run of about 100 feet—the maximum distance spring-driven locomotives will cover. "X" was considered as a possible site for the main station, since it was found that if the track was raised three feet from the ground here it would be at ground level by the time it reached "A." The idea was abandoned, however, because the sun would shine in the eyes of the operator (this may be regarded as undue optimism, but the sun does shine in Cornwall), and it was considered that if the railway scene was to be viewed to the best advantage the sun should shine over the operator's shoulder. "A" was then explored with the possibility of a line going towards the shrubbery "C," where it would bear round in a large half-circle, traverse the paths over suitable bridges and finally terminate on the opposite side of the lawn at "F."

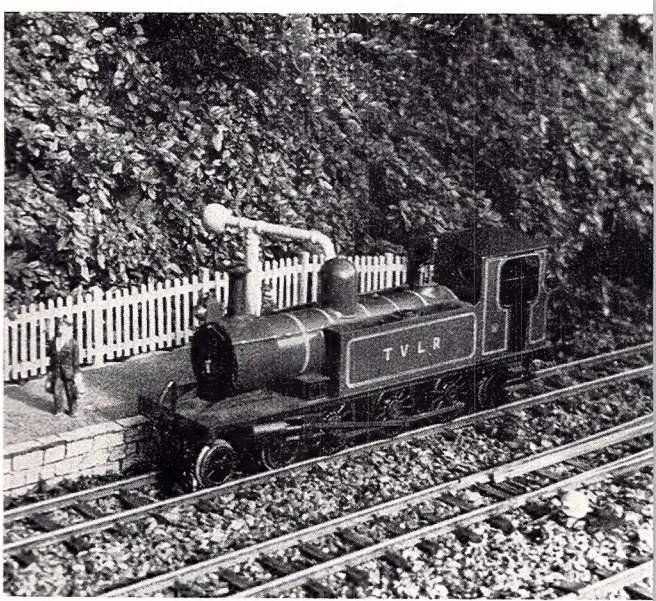
Up goods emerging from the first tunnel. To the extreme right can be seen a small tree of the Cupressus family. The growth to the left is to be discouraged—it is overscale and undesirable!

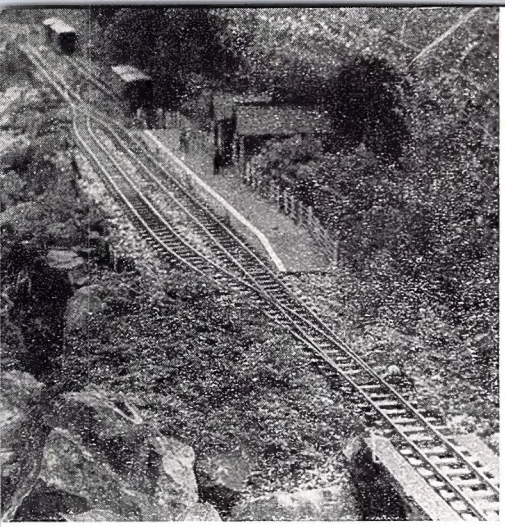
Harrowbarrow station. To the left centre is another Cupressus, with some realistic—and natural—logs awaiting transit. Various Brittains figures can be seen on the platform.

The route is indicated by the shaded area in Fig. 1. It was found that the highest point of ground to be traversed was the path "D," and it was considered desirable that the track here should not be less than seven inches above the ground when carried over the path on a low viaduct. This was to be the minimum height. A stake was struck in the ground here and a string carried across the garden to point "A." The string was levelled with a plank and spirit-level as shown in Fig. 3, and when extended level to point "A" it was found that rail level would be only fifteen inches above the ground—not sufficient to eliminate backache. It was decided therefore to open up an operating pit at "A" so as to make the rail level thirty inches above the adjacent ground. Fig. 2A shows a section through the ground here before alterations and also after the pit had been opened up and suitable retaining walls built, while a more detailed sketch will be found in Fig. 4. Very briefly, the ground was dug away to a depth of eighteen inches, the bottom filled with rubble and finished off with small stones to a depth of three inches. The retaining walls were built up on concrete foundations (one part of cement to two parts of sand and five parts of small stones) with any large stones that hands could be laid on. All shapes and sizes were fitted together and bedded in with cement (one part of cement to three parts of sand). The ground behind the wall was filled up with earth taken out of the pit and with ashes (the residue of domestic fires, of which there always seems to be a superabundance) where the tracks were to be laid. Small stone steps were provided to enable easy access to the pit. The cover shows a young lady operator, incidentally the Editor's wife, standing in the pit and reaching the controls of the locomotive.

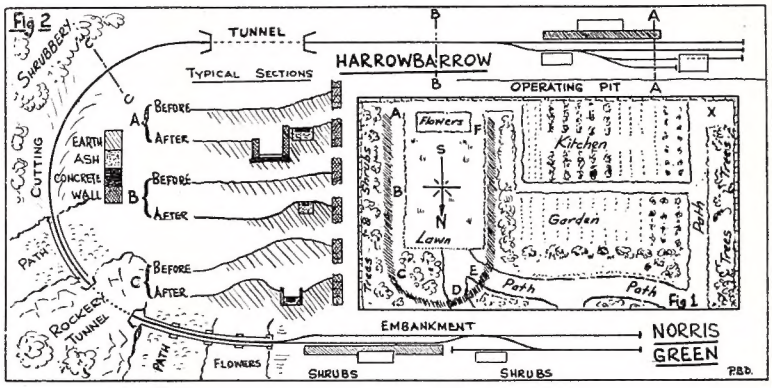
It may be of interest to go round the track from "A" (Fig. 1) and consider each engineering problem as it presented itself, for building a garden railway is rather like laying a track in full-scale practice. From "B" to "C" it was necessary to build a low

Taking water at Harrowbarrow. The shrubs in the background are Lonicera nitida.





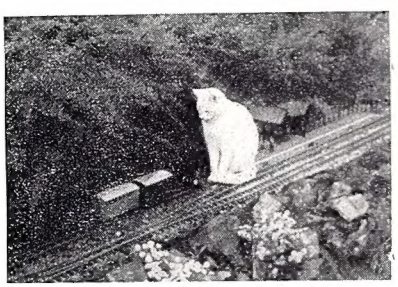
Aerial view of Norris Green. The trees in the background are deciduous berberis. Lemon thyme adjoins the track in the immediate foreground.

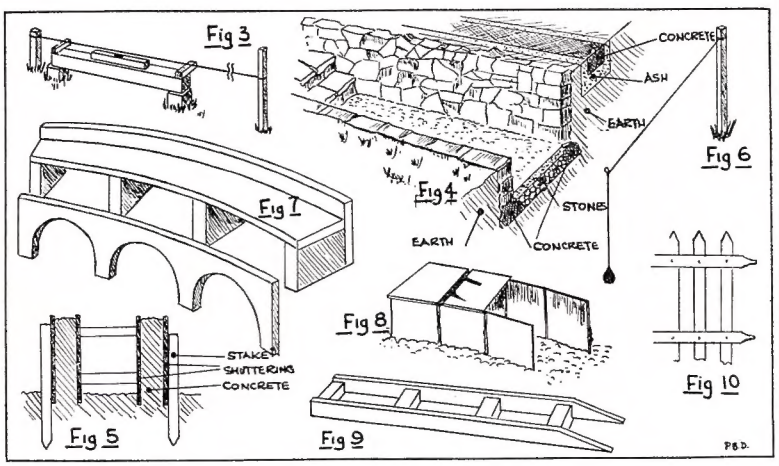


embankment. Again ashes were employed, rammed down between a temporary shuttering of planks held in position with stakes and the embankments built up with earth (Fig. 2B shows a section through this part of the garden both before and after the engineering work). At "C" (Fig. 1) the track was almost at ground level and between "B" and "C," in order to make a break and to give scenic interest, it was decided to have a tunnel. A concrete foundation was laid down, wooden shuttering put up where the tunnel walls would be, and the space between filled with concrete (Fig. 5). When dry the shuttering was removed, and the roof was covered with old slates and cemented over. A rocky hill was built up over the tunnel and one of the photos shows a train emerging from the southern end. The tunnel mouth here was built entirely of wood, scribed to represent blocks of ashlar and painted and varnished. The effect of the stonework on the retaining walls was obtained by first painting cream (two coats) and then before the final coat of stone colour had time to dry the marks between the stones were scored on with a blunt tool so that the cream undercoating paint showed through. The keystone was a separate piece of wood fixed in place—at least so it was thought, but when the time came to take the photo it had disappeared and had to be hastily replaced by a piece of plasticine! The track in this photograph was in the process of being relaid at the time, hence the absence of ballast.

From "C" to "D" the ground rose sharply and it was necessary to open up a cutting here as the line went round the curve. Nothing but sheer enthusiasm for the railway would have ever made the writer set his spade (sorry, a spade was useless—his pick) in this part of the garden! The ground was a tangled mass of roots, including those of an oak tree, which had to be sawn away. Plotting the course of the curve was accomplished with the aid of a plumb-bob on the end of a piece of string of the correct radius (eight feet) fixed to a stake in the ground (Fig. 6). The cutting was opened up six inches deeper than required and filled with ashes and the sides were edged with stones to prevent the earth being washed down on to the line (Fig. 2C). The next feature to be encountered was the path at "D," and a low viaduct was constructed in wood in order that it might be portable (although in practice it is seldom moved). The method of construction was quite simple. A segment was cut from a piece of half-inch timber to the appropriate radius (Fig. 7). To this were attached side pieces of timber with the grain running vertically, in which suitable arches were cut out. In actual fact $\frac{1}{8}$in. plywood was used, but this is not to be recommended and a far better material would have been $\frac{3}{8}$in. pine. The whole of the outside was covered

Garden railways are liable to interruptions of service—in this case the family albino cat, which, being deaf, is somewhat hard to shift.





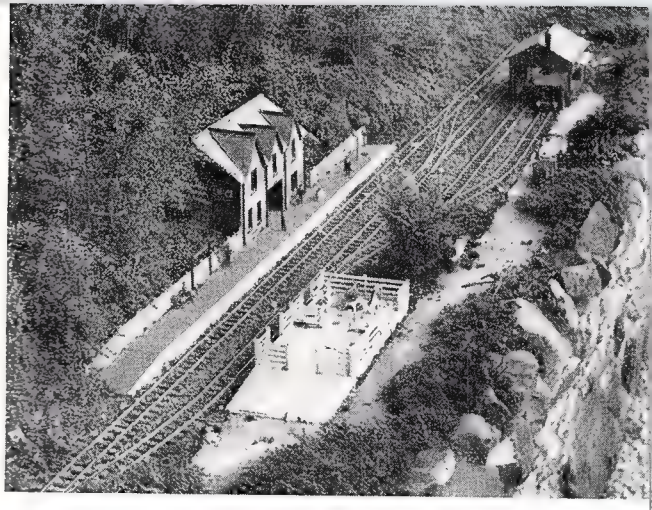
with roofing felt, held in place with rubber gum, scored out to represent stonework and a small quantity of cream paint rubbed on with a piece of rag. The underside of the structure was well tarred, supports being added as indicated in the sketch.

The next task was to bore a tunnel through the end of the rockery garden between "D" and "E." A trench was very carefully opened up and the bottom filled with concrete up to the track level as on the previous occasion; but in this case, as the track was on the curve, the sides were lined with slates bedded into the concrete (Fig. 8). Slates were then placed across the top to form a roof and the concrete was carried up the sides and over the top to seal the joints against roots and rodents. The tunnel ends here were made with asbestos sheeting. This is tricky stuff to cut, but if care is taken it can be done, the writer's method being to use a medium-grade wood saw in a fret machine. Stonework was represented, as in the case of the viaduct, by covering with roofing felt and scoring out. The first few inches of the inside of the tunnel were shaped with concrete to the contour of the tunnel opening and painted black.

Immediately on emerging from this tunnel the track had to cross another path, and for this purpose a four-span under-slung girder bridge was constructed, about which it is not proposed to say anything further here since a detailed description of this bridge will appear in next month's RAILWAY MODELLER. At the end of this bridge the track was about one foot above the ground, and as the lawn sloped away towards the south by the time point "F" was reached it would be two feet above ground level. It was decided not to open another pit, but to arrange this station on an embankment and earmark it for operation by the junior members of the family. An edging of large stones was arranged, surmounted by further strings of stones set slightly back in the earth up to the rail level. Shuttering was again erected and filled with ashes to form the track bed and earth was built up on both sides.

Originally the track was laid directly on the ash foundation, but it was found that in winter the frost lifted the track and made relaying necessary in the spring. A simple cure for this was found to consist in opening up a trench three inches wide and three inches deep beneath every running rail and filling in with a concrete mixture. The track was then laid on top and ballasted with $\frac{1}{8}$in. granite chips in the usual way. When the ballast is in place a small watering can, one of the children's, is filled with creosote, which is poured along both track and ballast until all is well soaked, an operation that is repeated once a year.

The platforms were not constructed in the usual way recommended for garden railways, namely in concrete, but instead portable structures were built up in wood. The platform seen at Harrowbarrow was built up from a wooden framework of $\frac{3}{8}$in. pine (see Fig. 9). The bracing pieces were finished $\frac{3}{16}$in. short of the sides and the platform surface consisted of sheets of asbestos sheeting cut to size and screwed in place. The wooden edges were covered with roofing felt and suitably scored to represent stonework, and the surface was given a coat of dark brown glossy paint and sprinkled with very fine sand while still wet. The platform at Norris Green was made from a solid piece of $1\frac{1}{2}$in. wood to which ramps were added, and again finished off as described above. The fencing in the case of the former platform was made by cutting



Bird's-eye view of Harrowbarrow—once more lemon thyme to the foreground.

the palings from $\frac{1}{16}$in. plywood and pinning and gluing it with "Durofix" to short lengths of 3 x 4mm. hardwood, the ends of which were shaped as in Fig. 10. These were inserted into posts secured to the platform rather in the same way as full-size fencing is erected. On the latter station the fencing consists of wooden posts drilled suitably to take four lengths of phosphor-bronze wire. In both cases the finished fences were given three coats of paint.

It is not proposed to say anything here about the construction of buildings, as it is hoped to deal with these in a separate article.

At the time of writing (spring 1956) the motive power on the T.V.L.R. consists of one clockwork locomotive built after the syle of a Londonderry and Lough Swilly Railway 4-6-2 tank, the principal difference being the use of inside instead of outside frames. This prototype was chosen because the coupled wheel arrangement was the nearest that could be found to the Walker-Reimsdyk controlled clockwork mechanism. The rolling stock consists of five four-wheeled Isle of Man coaches and brakes and a miscellaneous collection of goods wagons, mostly of the same company.

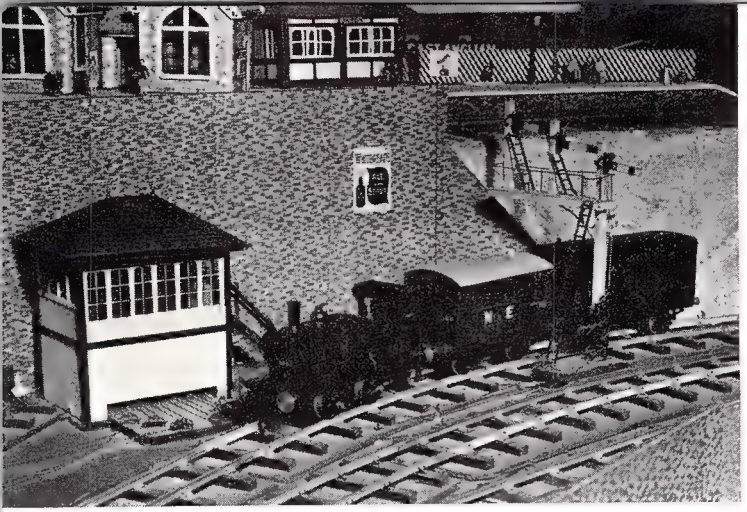
The scenic effects have generally been specially planted. For low hedges or even green embankments near the line the most suitable plant the writer has come across is ordinary lemon thyme. This is a plant with a small leaf, it is an evergreen and it does not produce out-of-scale flowers—a thing to avoid. It is of rapid growth from small pieces tucked in the ground, it can be cut back when it grows too profusely, but it is best if it is replanted every three or four years. A small shrub which produces equally small leaves is *Lonicera nitida*, also a plant of rapid growth from cuttings and producing small trees which can be trimmed to any shape. The tree in the foreground of the large photo is one of the *Cupressus* family. These are most attractive trees, growing slowly from cuttings and keeping their shape well with little attention. The trees at the back are deciduous berberis, a prickly variety of plant bearing an attractive red berry.

A garden railway has a unique fascination of its own; to watch the train wending its way into the distance and out of sight and then reappearing again, while the sunlight shines on the locos and coaches and shows everything up to best effect, is a pleasure that only those who have gone out of doors can experience.

A MIDLAND

in "O" Gauge

by N. S. Eagles



The 0-4-0 saddle tank 1523 shunting horse-boxes at Bradcaster. The high-level Oxton loop line can be seen in the background. Note the Oxton signal box on the platform, which is modelled on the signal box at the Midland station at Cheltenham, Lansdown.

Photo, Philip J. Kelley.

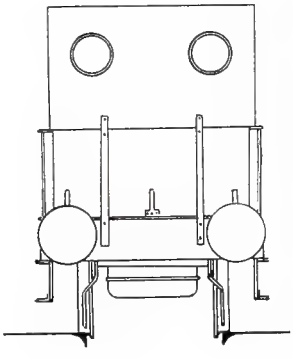
AS regular readers are aware, Bradcaster is the country branch terminus of the Sherwood Section of the L.M.S., a fairly extensive clockwork "O" gauge layout. The site for the station is an awkward one, being long and narrow and bounded on the one side by the high-level loop line to Oxton and on the other by an operating space. In this space two operators have to work back to back, and the present area would not permit of two Billy Bunters even standing together, let alone operating! Hence, as so often happens with model railways, we had to accept the space as it was and not hope to enlarge it. All this merely leads up to the point that Bradcaster is an awkward station for carrying out shunting movements; the sidings are situated at odd corners of a restricted layout and it is even necessary to shunt over the turntable to reach the permanent way depot and the disused carriage works.

In the past shunting had been carried out by the train engine, usually a 4-4-0 or an 0-6-0. Such locomotives were far from convenient for this work, and we recently decided that a small shunting loco should be built and allocated permanently to Bradcaster. We could have chosen one of the ubiquitous 0-6-0 tanks, but we felt that we would prefer a more unusual model if it were possible, and so came to consider the 0-4-0 tanks of the Midland Railway. Broadly speaking, these fall into two main groups, the saddle tanks built by S. W. Johnson from 1883 onwards and the side tanks built by R. M. Deeley in 1907 and H. Fowler in 1921. As the latter have outside cylinders and Walschaerts valve gear, inevitably there would be some loss of power in the completed model through friction. On the other hand, the saddle tanks have many advantages in model form. They have an exceptionally short wheelbase with only four driving wheels and they are comparatively straightforward to build, with a straight frame and inside cylinders. The saddle tanks divide into two groups: 1500 to 1517 and 1518 to 1527. The following information has been collected from various sources and as far as can be ascertained is accurate.

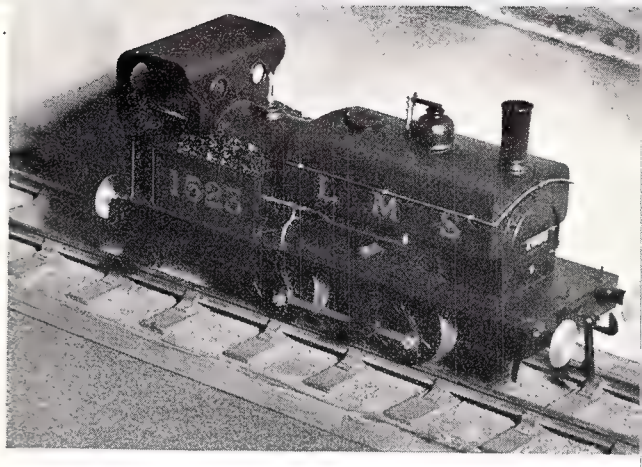
The first five appeared from Derby works in 1883. At that time they were numbered 1322—1326, acquiring an "A" suffix in 1892 and becoming 1500—1504 in the 1907 renumbering. Cylinders were 13in. x 20in., driving wheels 3ft. 10in. diameter, boiler pressure 140lb. and water capacity 400 gallons. The weight in working order was 23 tons 3 cwt. I believe that certain of these engines had, at one time or another, wheels with H-section spokes. In 1889 and 1890 a further five engines were built, numbered 202, 1428, 1429, 1430 and 1697, again acquiring an "A" suffix in 1892. Nos. 202 and 1429 had been withdrawn by 1907, the other three becoming 1505, 1506 and 1507 respectively in the renumbering of that year. No. 1506 survived for many years after the rest, since after her official withdrawal in 1924 she was transferred to departmental stock and acquired a bell for use in Derby works. She was renumbered 1509 in 1930, this being necessary to make room for the saddle tanks of the Somerset and Dorset Joint, which at that date were being taken into L.M.S. stock. In this form she is well remembered by many enthusiasts, as she was not finally withdrawn and cut up until the end of 1949. Five more locomotives followed in 1893, viz. 1116A, 1117A, 1118A 1119A, 1120A, which became numbers 1508 to 1512 inclusive in 1907, and of these 1510 survived until 1936. A further five locomotives came out in 1897, numbers 2359, 2360, 1131A, 1132A and 1133A, becoming 1513 to 1517 respectively in 1907. Of these 1516 is still at work at Burton-on-Trent, having survived by nearly twenty years 1510, which was the last but one in normal service if we except 1506, which, as already mentioned, had been transferred to departmental stock. In 1897 an enlarged version appeared from Derby works, but otherwise the distinctive features, e.g. the stove-pipe chimney, the Salter balance and the cab (or should I say weatherboard?) supported only by two handrails at the rear, were retained. Cylinders were enlarged to 15in. x 20in.; driving wheels remained at 3ft. 10in. diameter; boiler pressure was increased to 150lb. and water capacity to 650 gallons, so that the total weight

MIDLAND RAILWAY 0-4-0 ST.

Drawing full size 4mm. scale.



0-4-0 SADDLE TANK



The latest addition to the Sherwood stud. Believe it or not, the motive power is clockwork !

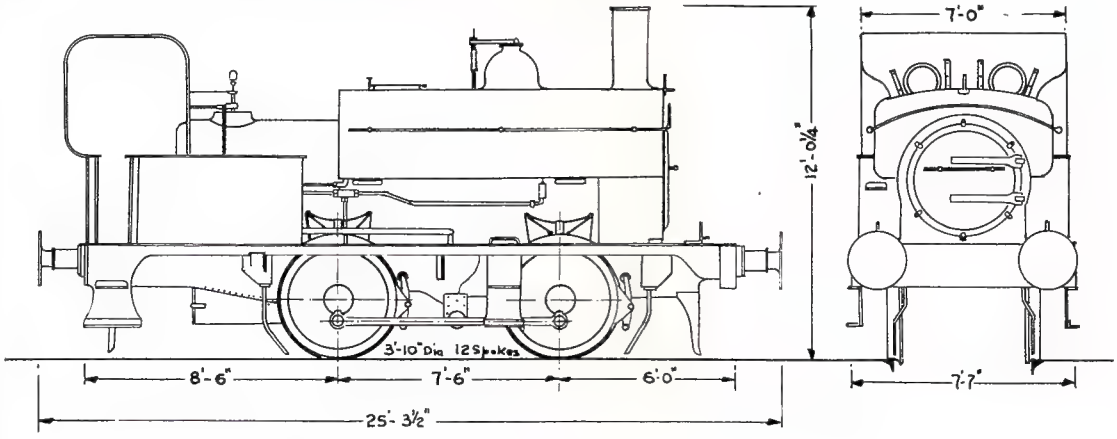
Photo, Philip J. Kelley.

in working order became 32 tons 3 cwt. Five locos, 1134A, 1135A, 1136A, 1137A, 1138A, appeared in 1897, and a further five, 1139A, 1140A, 1141A, 1142A 1143A, in 1903. These became 1518 to 1527 respectively in the 1907 renumbering. Of these ten locos, all except 1518 and 1523 were withdrawn by 1932, 1523 surviving until 1955, leaving 1518 still in service from Staveley shed. It would seem that at some time or other 1518's boiler pressure has been reduced to 140lb., since that is the present figure. I am not at all sure which of these engines received a back to its cab during its lifetime. H. C. Casserley, in an article in the April 10, 1920, issue of the *Locomotive News,* states that "1504, 1506, 1513 and 1526 have larger all-over cabs." The only one I personally observed to be so fitted was 1523, but a photograph taken by another member of the gang, Gordon Preston, of 1524 at Gloucester Docks in April 1932, shortly before she was withdrawn from service, shows that that loco was then fitted with a back to its cab.

Having decided that one of these saddle tanks would make an ideal shunting engine for Bradcaster, it seemed that a drawing of neither the 1500—1517 nor the 1518—1527 series was readily available. As at that time (late 1953) both 1516 and 1523 were allocated to Burton-on-Trent a party of Sherwood members arranged to pay a visit to the depot to obtain the necessary measurements. The shed foreman was very courteous and we found the two locos stabled together on one stall in the round house. Thanks to his foresight and the good lighting that pierced the gloom of a November afternoon, we were able to take full measurements and details, and the accompanying drawing of 1523 has been prepared by Geoff Della-Gana.

The mechanism for the model did not present any difficulty. We had in stores a small four-coupled clockwork motor of Marklin origin, very similar to the mechanisms used in the "Bonzone" saddle tanks, and it was possible to fit this into the available space without the necessity for angling the mechanism, a practice we had resorted to with many other model locomotives. Generally speaking the model was constructed similarly to the Fowler 2-6-2 tank and the Midland 2-4-0 described in the article in the August 1955 issue of the RAILWAY MODELLER. Nickel silver of 28 gauge was used throughout except for the footplate, where, in order to give additional strength, 26 gauge was employed. As previously, the buffers and boiler mountings were turned up specially for the locomotive and the smokebox door was built up from thin sheet. For the buffers, which are a conspicuous feature of these engines, a large circle of nickel silver was cut, and riveted and soldered on to a normal-diameter nickel-silver shank. For driving wheels, we utilized the tender wheels produced by the Leeds Model Co., which are 26mm. diameter and are therefore almost exactly scale. It will thus be seen that this locomotive conforms to the standard set by the latest models on the Sherwood Section.

In practice the model has proved to be very successful ; its speed is exceptionally steady and the short wheelbase is a great asset for shunting, particularly across the turntable. It is, of course, the smallest engine on the Sherwood Section and its size may not be readily appreciated until it is compared in one of the photographs with the horse-boxes it is shunting. Its diminutive size and unusual outlines have brought forth many comments, and the reader who seeks a small shunting locomotive of unusual design might well consider one of the Midland 0-4-0 saddle tanks as his prototype.



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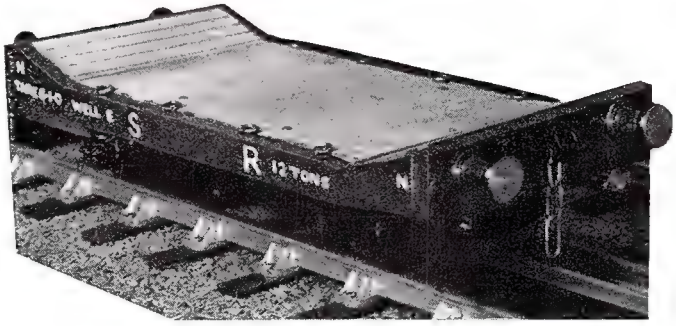
Do It Yourself No. 7

A WELI

by E. B. Trotter



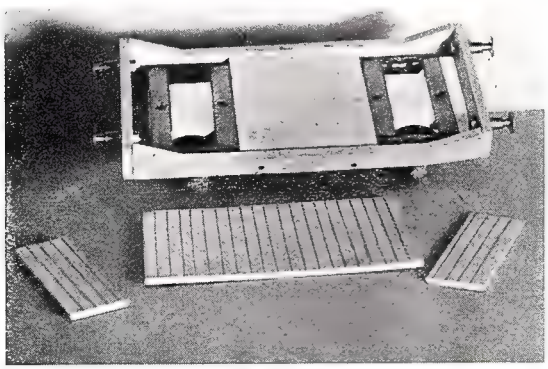
The completed wagon.

THE first problem in making a model of this wagon was that, in common with several other designs of well wagon, it required unusually small wheels. This was solved when it became possible to obtain American type "O" gauge wheels. American "HO" wheels would probably be suitable for anyone wanting a similar model in "OO" gauge.

Owing to the rather unusual construction involving close clearances, especially between the wheels and channel section members carrying the axleguards, it was obvious that considerable changes would have to be made to the underframe construction to make a satisfactory model. One half of each of the sectional drawings shows the actual construction for the benefit of any modeller who wants to make a "super detail" job, or to develop his own methods of construction.

The centre portion of the frame, 4¼in. x 2⅛in., was made from wood $\frac{7}{32}$in. thick. Pieces 1⅛in. x $\frac{19}{32}$in. were cut out of the corners to clear the wheels and axleguards. Two grooves ¼in. wide x $\frac{1}{16}$in. deep were cut across the top of each of the narrow ends of this wood centre frame to take brass strips which carry the axleguards.

The tops of four L.S.W.R.-type axleguards were cut down to fit below the floor, and two 1$\frac{1}{16}$in. strips of ¼in. x $\frac{1}{16}$in. brass soldered between each pair of axle guards after the wheels had been inserted. The brass strips were secured in the grooves in the wood centre frame with countersunk screws, as can be seen in the photograph of the partially completed vehicle.



The wagon partially assembled.

The solebars and headstocks were cut from ⅛in. stripwood. The solebars, which are $\frac{9}{32}$in. deep at the centre portion, were pinned and glued to the side of the centre frame so that they stood $\frac{1}{16}$in. above the latter, forming a recess for the floor. The headstocks were drilled for buffers and couplings, and pinned and glued to the ends of the solebars. One end of each headstock is notched and the corresponding end of each solebar reduced in depth to clear the brake lever. The floor was made in three sections from $\frac{1}{16}$in. plywood scored to represent planking. The middle section was glued and pinned to the wooden centre frame. The end sections were fitted between the headstocks and centre section of the floor and glued.

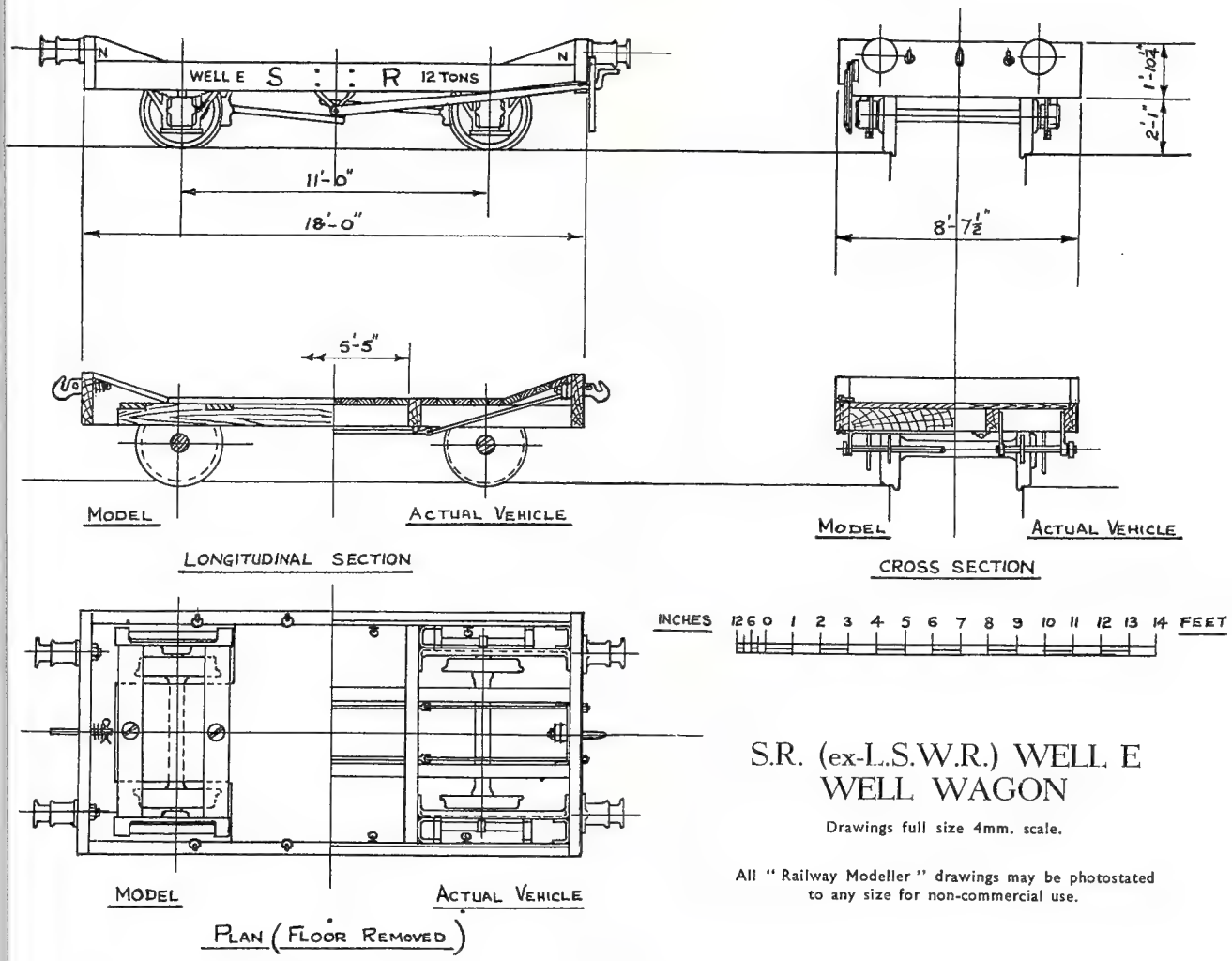
The sloping flooring of the actual vehicle is carried by wooden wedges on top of the solebars, longitudes and axleguard carriers, but this is unnecessary in the model.

Spring three-link couplings were fitted, and these had to be shortened considerably to clear the floor, which also had a slight recess cut in the underside.

The brake gear was made from tinplate. Two "V" hangers were cut on the ends of a strip of tinplate and bent down at right angles. The centre part of this strip was screwed to the underside of the wagon. There should actually be four "V" hangers, as shown on the sectional drawing of the actual vehicle, due to the brake gears on either side being independent. The vehicle is rather low, so that the "V" hangers on the longitudes would not be readily seen and were omitted. The brake blocks, block hangers and push rods for each side of the wagon were cut from one piece of tinplate. The block hangers were soldered to screws in the underside of the wagon, and the joint between the push rods was soldered to a 16-gauge wire brakeshaft carried by the "V" hangers. The brake lever and brake lever guard were cut from one piece of tinplate. The end of the lever was soldered to the brake shaft, and a tab on the lever guard bent at right angles and pinned to the face of the headstock. This represents the short length of angle which is bolted to the headstock of the actual vehicle to carry the brakeguard.

The prototype has four lashing rings each side, carried by brackets passing through the floor and bolted to the inside face of the solebar. A simpler method was used on the model, consisting of brass wire rings through the eyes of $\frac{1}{32}$in. diameter split pins. These split pins pass through holes drilled vertically through

WAGON IN "O" GAUGE



S.R. (ex-L.S.W.R.) WELL E WELL WAGON

Drawings full size 4mm. scale.

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the solebars, and were cut off so as to project about $\frac{1}{32}$in. and opened out.

The model is painted S.R. wagon brown, with white lettering and black axleguards and brake gear.

The drawing shows Warner type L.S.W.R. axleboxes (bolt each side), as these were used on the model, being the only L.S.W.R. axleboxes available. Most of the actual vehicles had Panter type axleboxes (bolt top and bottom), but both types were interchangeable.

Dimensions not shown on the drawing are as follows :

Wheels, 2ft. 7½in diameter (spoked on actual vehicle).

Solebars, 1ft. 4¾in. with ⅛in. steel flitchplate outside (solebars have 1½in x 3in. rebate for ends of floorboards).

Headstocks, 1ft. 10in. x 4½in. with ⅛in. steel flitchplate outside.

Crossbars, 1ft. x 5in. (top surface flush with top of floor).

Longitudes, 9in. x 4¾in. with ⅛in. steel flitchplate outside ; distance between longitudes 2ft. 3in.

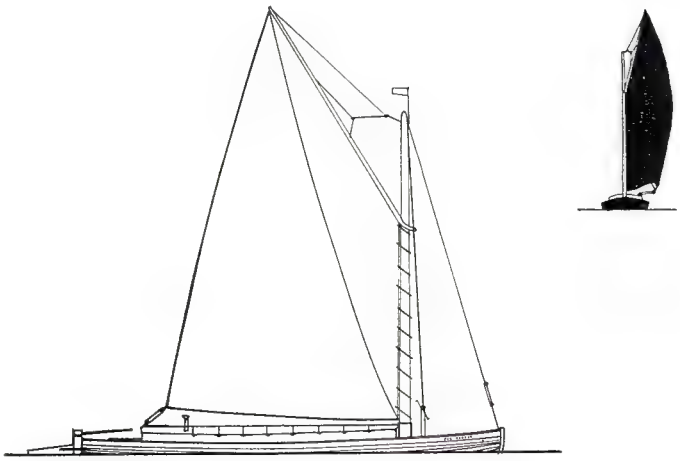
Axleguard carriers, 9in. x 3½in. steel channel section.

Centres of longitudinal tie rods, 1ft. 10½in.

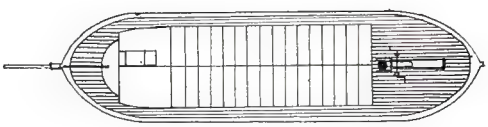
SAILING BARGES

by Stanley Elson, A.R.I.B.A.

FOR those enthusiasts whose trains run to the coast anywhere between King's Lynn and the Isle of Wight, here are two typical sailing barges to serve their rivers and ports. These fine craft are unfortunately almost a relic of the past, but a few can still be seen plying along the coast and up the inlets at Yarmouth, Maldon, the River Crouch, the



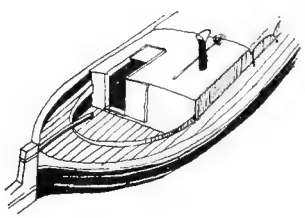
side.

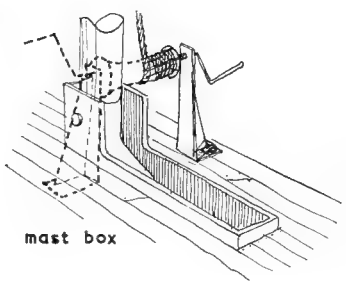


plan.

NORFOLK WHERRY

" Sir Garnet "





mast box

CONSTRUCTION

The hulls, which are possibly the most difficult parts to model, can be made from a solid block of wood carved and hollowed to the sections shown, or built up in wood and card. This last system, besides being easy of construction, is, when liberally painted with shellac, very strong and robust. The spars and mast should be made up from dowel of the correct thickness, properly tapered to about half its original diameter at the top.

When these have been correctly glued into place, all the necessary ropes, which can be of fine fuse wire or grey cotton, can be attached.

The sails, if hoisted, can be cut from thin paper and painted a rust brown in the case of the spritsail barge, and a dark

Colours

Hull	Black
Rubbing strip	Buff
Decking	As timber
Hatch	Dark grey or brown
Spars	Mixture raw sienna and white
Inside mast box	Black

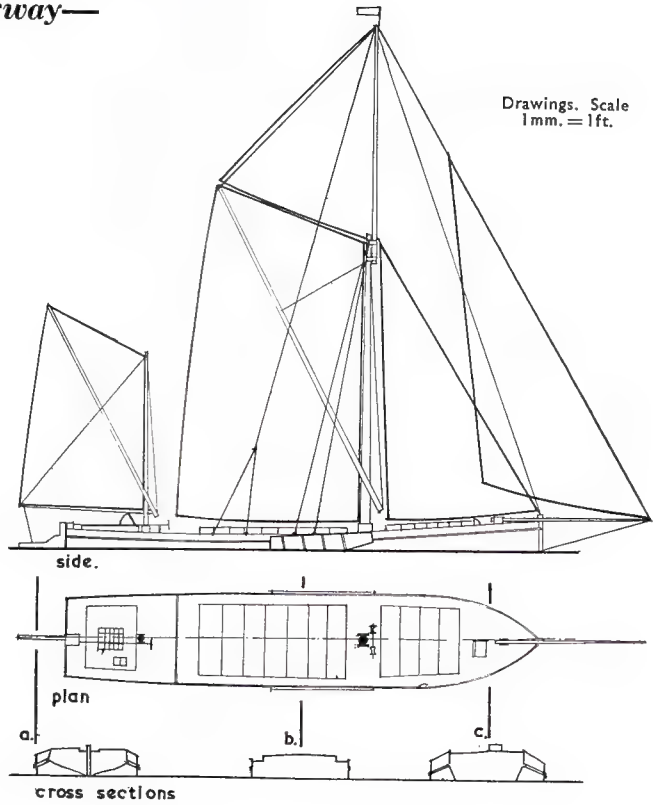
For your miniature waterway— an ideal summertime project

SPRITSAIL BARGE

" Sarah," " Nautilus," " Fortis," " Lady Jane "

Thames from Tilbury to the Pool, the Medway, Margate and the Solent, carrying anything from sugar beet to cement and sand.

Of the two barges, the spritsail barge could be found in any of the east and south coast ports at the turn of the century, while the wherry was strictly confined to the inland waterways of the Norfolk Broads.



burnt umber mixed with black for the wherry.

Should the sails be furled, however, the following procedure should be followed:

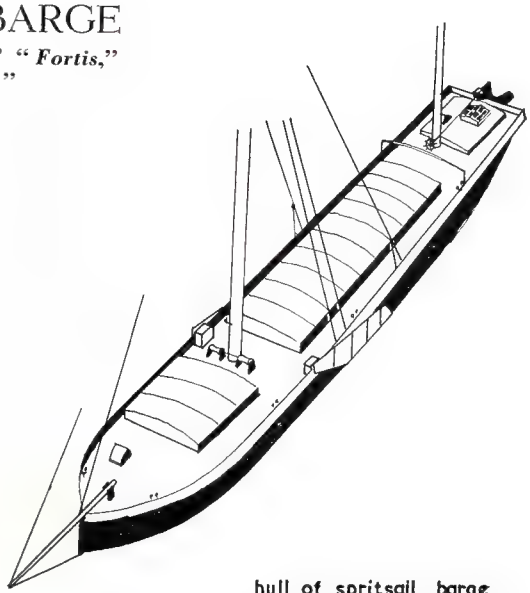
1. Cut out the sail in thin paper to the shape shown on the drawing.
2. Roll up the sail until it reaches the diagonal.
3. Carefully fold the remaining part on to the roll, bending in the centre as necessary, and tie with cotton, cutting the loose ends off close to the knot.
4. Glue to the mast and boom as shown on the small sketch.

The models should be painted with shellac and sanded down lightly with a piece of OO glass paper before final painting is attempted.

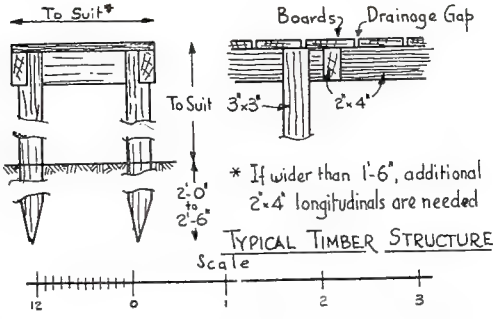
furled sails.

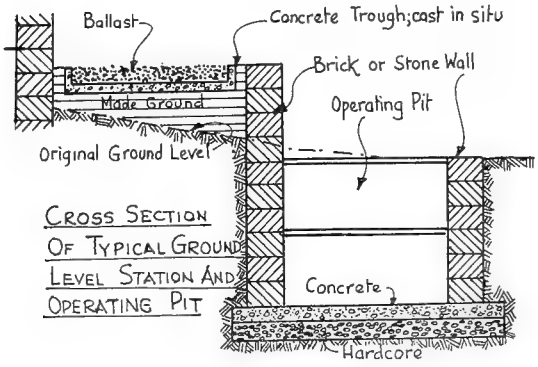
Colours

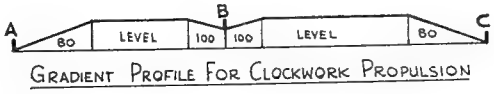
Hull	Black
Rubbing strip	White or red
Gunwhale	White or yellow
Decks	As timber
Spars	A mixture of raw sienna and white
Stove pipe	Black or green
Hatch	Dark grey or brown black
Lee boards	Black with flecks of red on the "iron" bands

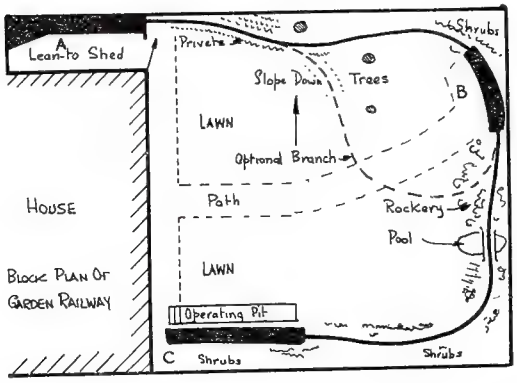

hull of spritsail barge showing layout of hatches.

GARDEN









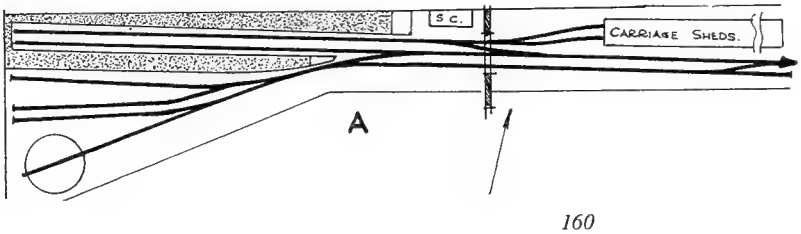
PLANNING a garden railway offers an entirely new set of problems. First and foremost, in most cases, the problem of finding sufficient space has vanished, for the average garden will allow, even in the larger scales adopted, a really long run between stations. The problem is, if anything, one of designing a layout that can be constructed in a reasonable time, for outdoor track needs to be carefully laid. There is also the question of providing shelter for the stock. for while the track must remain exposed to the weather there is no reason why we should demand that locomotives and coaches should do likewise. In this respect the ideal arrangement is a convenient shed or garage which can house the main station.

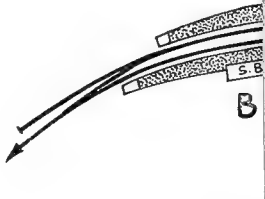
The real advantage of a garden railway is that it can be made to blend with the garden and add to its attractiveness. It is possible to disguise baseboard structures by planting quick-growing privet bushes below them, so that in a few years the trains appear to be running on the tops of bushes.

Better still, if the layout can be laid at or near ground level the appearance is still further improved. Cuttings and embankments can be made from the prototype materials, as can trees and shrubs, for there are many miniature plants which are in effect scale models of larger vegetation. Furthermore, this type of layout can be made to blend with rockeries, pools and other garden features, to the eventual improvement of the property.

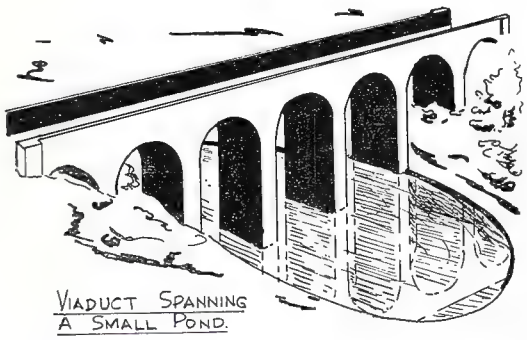
The indoor planner is usually concerned only with area—within normal limits his floor level does not concern him. Not so the garden planner, for unless the ground is almost flat it pays him to take the slope into consideration. A dip in one corner makes an ideal site for the main station, for here the line can be brought up to a reasonable level for operation without the need for a special pit, while elsewhere the track runs nearer ground level. Paths will be crossed by viaducts, or will provide scope for tunnelling. A word of warning here: not only should it be possible to gain reasonable access to the tunelled tracks, but it is advisable to install shutters which will keep small animals out; nothing is more disconcerting to both

Layouts for the Modeller—No. 90





RAILWAYS



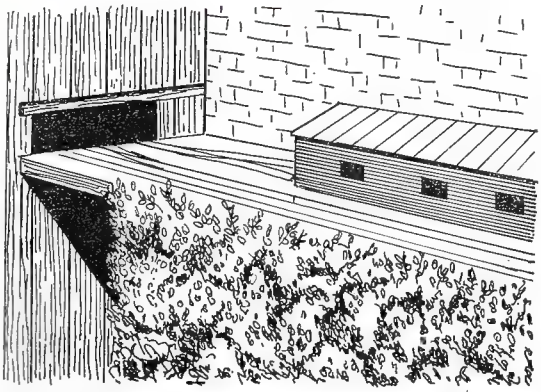
VIADUCT SPANNING A SMALL POND.

operator and animal for the express to collide with a kitten in the middle of a long tunnel! It is perhaps on the civil engineering side that the garden railway scores, for here there really is room to model a large bridge with complete fidelity.

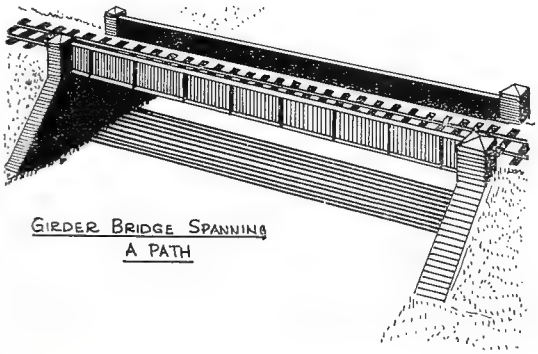
Gradients of prototype proportions can be introduced if so desired. In this connection it is as well to remember that should clockwork locomotives be used their length of run can be increased by arranging a small gradient out of each station, so that the initial power of the spring is expended in raising the train several inches, rather than against the governor. Then, at the end of the run, the gentle down grade will assist the locomotive to coast realistically into the platforms.

As termini of a point-to-point layout will be some considerable distance apart, and may even be hidden from each other, block bells and instruments begin to assume the importance they possess in the prototype. In fact, the question of accurate signalling between termini becomes quite important unless the operators are to spend most of their time shouting to one another. Operating a large garden system does call for the services of several operators, unless it has been designed so that the two termini are more or less adjacent. Alternatively, an active operator, given clear paths between the stations, can just beat a train along the line. This is not, however, altogether satisfactory!

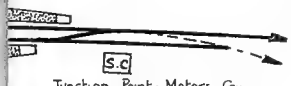
The detail design of stations does not differ materially from correct prototype practice, and in this respect is considerably more straightforward than for indoor work, where shifts and stratagems have to be adopted because of lack of length. The question of motive power does, however, have a considerable bearing on the distance between stations. Electric propulsion, and to some extent steam, presents no problems, but where clockwork is used the distance between principal stations should be some ten feet shorter than the normal length of run of the most powerful locomotives with a normal train. An intermediate station, or stations, should then be introduced to handle traffic carried by less powerful stock, so that the necessary pauses to rewind occur naturally.



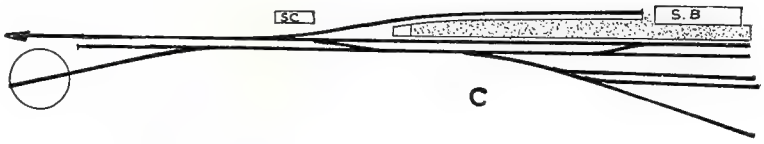
EXIT FROM SHED, SHOWING PRIVET HEDGE DISGUISING BASEBOARD



GIRDER BRIDGE SPANNING A PATH



Junction Point-Motors Can Be Mounted Inside Signal Cabin For Protection



Prototype of the Month

THE CAMBRIDGE

by
C. Gordon
Watford

Swavesey station buildings from the platform side.

IN view of the fact that the track is double for the whole of its eighteen-odd miles, and no restrictions are enforced upon either the locomotives or the speed maximum, one might almost regard this branch as a main line. The intermediate stations are quite large enough for our modelling purposes, and follow a stereotyped pattern typical of both the Great Eastern and Great Northern companies.

Swavesey station is typical of the stations on this line, and the following notes on this station in particular are generally applicable to other stations on the line. The station building combines waiting room and booking office, etc., with the living accommodation for the stationmaster. The building itself is built of brick, and is vaguely similar to those on some of the Southern branch lines. The cycle shed attached to the rear of the building gives evidence of the flat nature of the countryside. A model of this attachment would be best constructed from sheet brass, ready fashioned in the form of corrugated iron, and obtainable from most good model shops. Access to platforms is gained by crossing the lines at ground level alongside the level crossing, footbridges apparently being regarded as luxuries in this part of the country.

The goods shed is quite a large affair, and is built of timber and creosoted. There is a second goods shed of similar construction over the goods back-road, this being used for the storage of fruit. The cattle dock is of an unusual triangular design, which enables it to serve two sidings at the same time. At the east end of the station there is a small water tower of Great Eastern vintage.

I think that in model form the best location for this station would be in the corner of the layout, on a continuous circuit. The station would be ideal for the average main-line layout which requires accommodation for about a six-coach train. Oakington station would then be located along the far side of the layout, where a nice straight run of some ten feet or more would be required. Some hidden loops could be installed at the far end of the room, on the curve, if required.

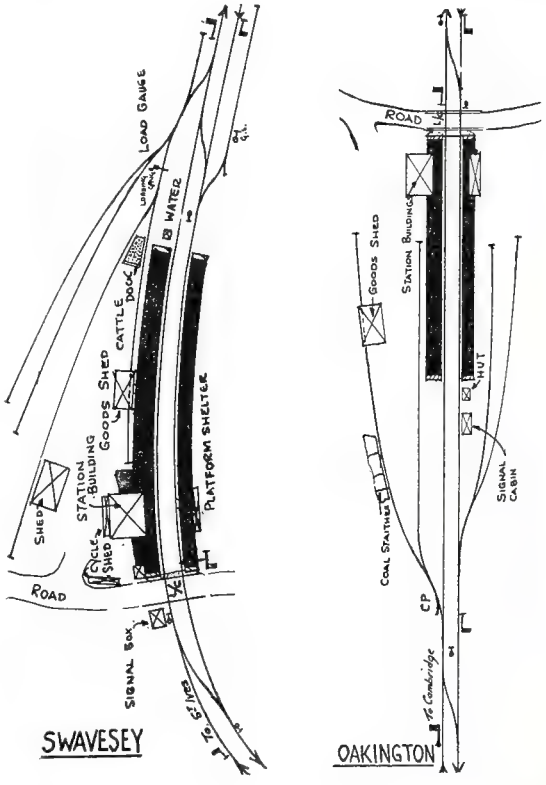
The platforms of all stations on the line have a surface of gravel or some similar material. In model form, the best method of obtaining the desired effect would be to use fine glasspaper. This would have to be cut to the correct size and shape, and glued down to the wooden top of the platform. Next, a coat of burnt umber for gravel, or dark grey for tarmac,

Swavesey goods shed from the goods yard. Note the triangular-shaped cattle dock on left background.

Swavesey goods shed from the platform side.

HUNTINGDON BRANCH

Swavesey station buildings from the road approach. Note the cycle shed.



with dashes of local colour, would complete this part of the platform. The next step would be to glue a strip of card along the edge of the platform to form the paving slabs, using a sharp cutting knife to score out the individual slabs. After painting a pale grey, the white line would be painted in on the edge of the platform to complete the job.

Operational fiends may be interested to know that on the prototype branch passenger trains are fairly frequent, and are usually made up to about six coaches. Most of these trains stop at all stations, but some work through non-stop between St. Ives and Cambridge. Goods traffic is chiefly connected with the food factory of Chivers, at Histon, farther up the line. At Swavesey there is a considerable trade in plums and apples. Incoming traffic includes coal, and empties for the outgoing fruit traffic.

Remember, if you wish to capture the atmosphere of this branch in a model, avoid hilly scenery—the countryside is perfectly flat in this district.

Longstanton signal box.

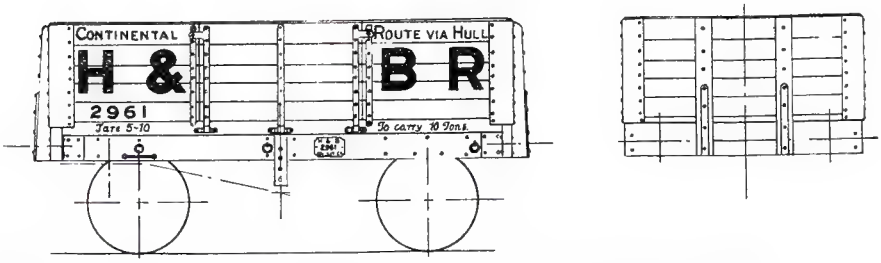
FROM SIR ERIC'S NOTEBOOK

A further selection of pre-group wagon drawings from the collection of Sir Eric Hutchison, Bart.

In every case the post-group company is given in brackets ; the Midland and Great Northern Railway did in fact survive grouping. The wagons were latterly painted in the standard liveries of the four groups ; this of course varies according to the period. Such as survive to the present day are now painted in B.R. style, that is to say unpainted except for a black panel bearing the number, but showing weathered traces of former liveries.

All " Railway Modeller " drawings may be photostated to any scale for non-commercial use.

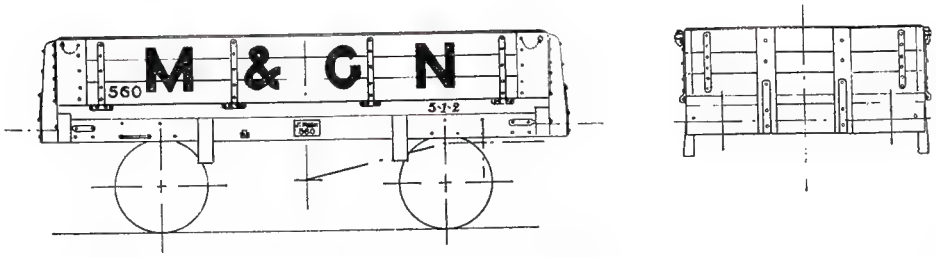
All drawings full size 4mm. scale.



Hull and Barnsley Railway 15ft. 6in. 10-ton open wagon (L.N.E.R.).

Brakes on all wheels with both handles at the same end of the wagon. Painted dark grey, with black ironwork and white writing. As will be seen from the photograph, differences in the brake gear and writing existed.

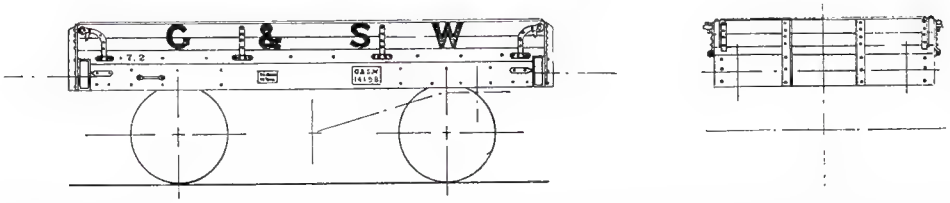
Additional numbers as per drawing : 1360 (5.11) 2962 (5.12).



Midland and Great Northern Joint Railway drop-side wagon.

Brakes on all wheels, with handles on both sides. Painted red oxide, with black ironwork and white writing and tyres.

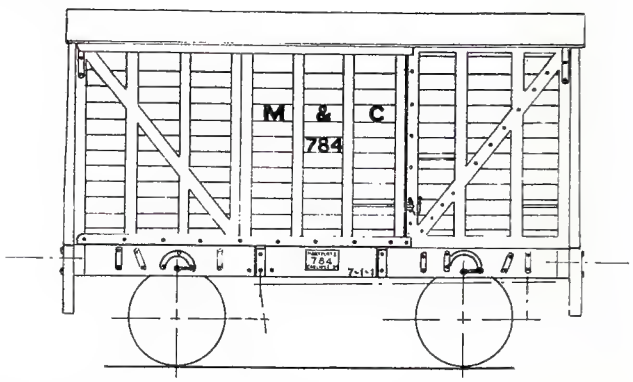
Additional numbers : 243 (5.23) 287 (51.3).

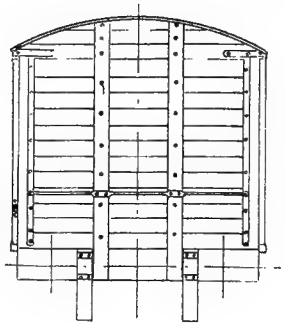


Glasgow and South Western Railway 25-ton ingot and 8-ton pig-iron wagons (L.M.S.).

These two wagons are identical in appearance, although their underframes vary considerably. The drawing shows the ingot wagon. The pig-iron wagons were normally lettered " PIG IRON " on the top board between the & and the S.

Painting : light grey, black ironwork, white writing and tyres.

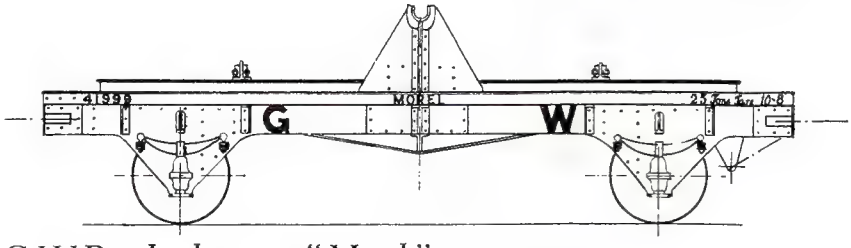


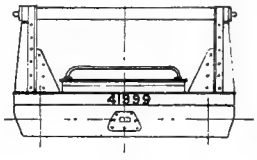


Marypoint and Carlisle covered van (L.M.S).

Raised framing (2½in.) on door and sides, but the ends are flush with the side framing, only the end pillars being raised. The ends of the short handrails between the framing are concealed in the woodwork. Sliding dors and butting timbers for use with certain private firms' locomotives.

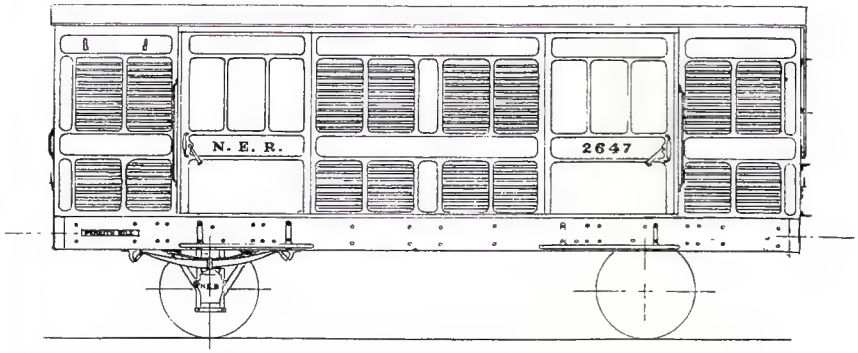
Painting: dark grey, black ironwork and running gear, white roof, tyres and writing.

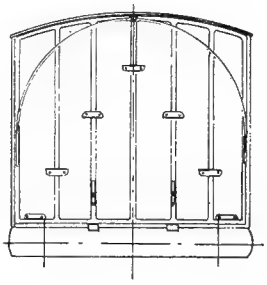




G.W.R. wheel wagon "Morel."

This wagon is provided with a large rectangular opening extending to within 2ft. of each end and 1ft. 6in. of each side. The opening is bridged by adjustable steel L section beams which can be secured at 6in. intervals from the centre of the wagon to the outer ends of the opening. A circular steel bar, shown in the end elevation, rests in the trunnions and supports the centre of the load, the rim being secured to the adjustable beams. The rectangular slots behind the headstock plates house the ends of the buffing springs, while those above the spring centres are for lubrication. Oval buffers are fitted, also G.W. ratchet brakes operating at one end only, with handles at each side.





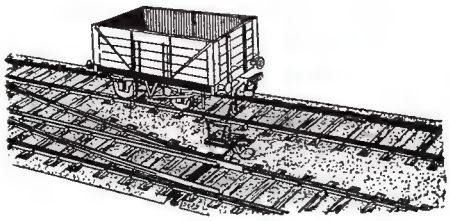
North Eastern Railway milk van (L.N.E.R.).

These vans were built about 1899-1902. The two doors on each side are raised and slide towards the centre of the van. Raised square section doorstop. Steps at one end only, and a small grab-iron on each side at waist level at the opposite end. Westinghouse fitted. Mansell wheels.

Painting: body and ends, coach lake; tyres and roof, white; solebars, vermilion; headstocks, ironwork and running gear, black. Originally the louvres were varnished pitch pine, and the words "MILK VAN" appeared on the door waist panels, N.E.R. being to the left of the left-hand door and the number to the right of the right-hand one. Lettering in gilt, shaded to left and below with red. Panels lined medium yellow.

About 1912, however, the lettering was changed to the style shown in the drawing, and vans were marked for districts by white letters on a narrow black board at the left-hand end of the solebar, e.g. the Newcastle vans were marked "Carlisle Milk," "Northallerton Milk" or "Penrith Milk," depending on their allotted route. All vans were varnished and had round coach buffers and screw couplings.

Peco Topics



CHANGE TO SCALE TWO-RAIL

Part 1
The Reason Why

WITH a very few exceptions, the entry to this hobby is through a proprietary train set. This is understandable, for the only other way one can become acquainted with the joys of railway modelling is by visiting a model railway exhibition, and this is nowhere near as good as doing it yourself with an inexpensive set bought from the local model shop, perhaps using one's son as the excuse.

These sets provide the nucleus of a good model railway, but, being designed primarily as toys, they do fall short of the accepted scale standards in one important particular—the wheels. Moreover, as the principal proprietary systems each use a different wheel type and electrical system, it means that they cannot be used together without adaptation of some sort.

If one adopts B.R.M.S.B. scale standards for two-rail, the problem is not only readily solved but provides the entry to the world of scale railway modelling. The track, which comprises the major part of the railway, is perfectly straightforward; so is the electrification, for many people the most difficult part of all.

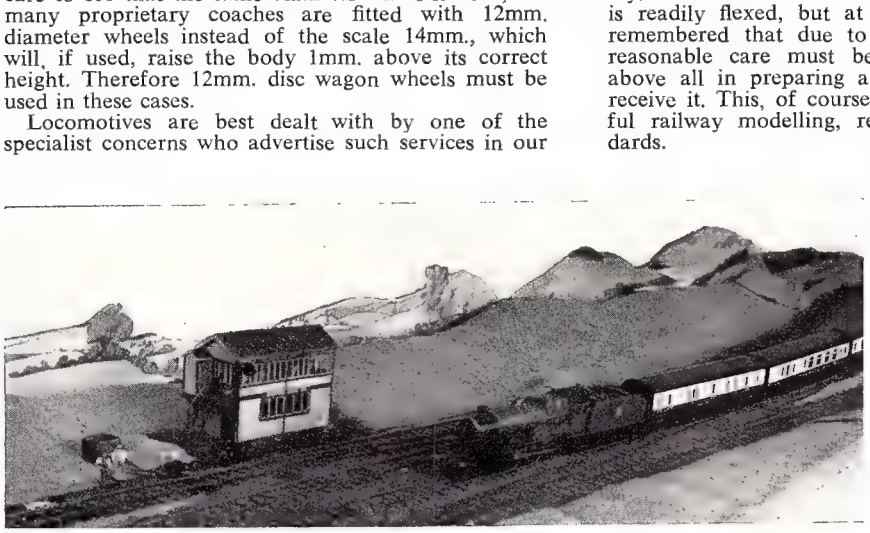
Conversion of rolling stock can be carried out by the modeller with little or no difficulty, as all that is needed is a simple substitution of wheels, taking care to see that the same diameter wheel is used, for many proprietary coaches are fitted with 12mm. diameter wheels instead of the scale 14mm., which will, if used, raise the body 1mm. above its correct height. Therefore 12mm. disc wagon wheels must be used in these cases.

Locomotives are best dealt with by one of the specialist concerns who advertise such services in our columns, for in most cases this operation involves the stripping of the chassis, a straightforward enough task, but one calling for experience if the results are to be good. Apart from this, these specialists not only convert the locomotive to scale two-rail standards, but test and adjust it afterwards, ensuring that the performance after conversion is, if anything, superior to that before. This may appear an expensive procedure, but the cost is in almost every case outweighed by the saving in the price of track—two rails are obviously cheaper than three!

Electrically, two-rail is simplicity itself, as we propose to show in forthcoming articles. Moreover, it provides, without special switches or other complications, automatic isolation of sidings and other tracks, according to the setting of the points, and usually eliminates a large number of switches at the control panel, not to mention sub-baseboard wiring—again a considerable saving in cost.

Quite apart from all this, the real advantage of a two-rail scale system is that it can be improved indefinitely. Remember, it is possible to begin with a collection of purely proprietary equipment, and by a policy of gradual replacement end up with a collection of hand-made super-detail models, for it is possible to run all makes on B.R.M.S.B., scale track, provided one adheres to these standards throughout.

Last, but by no means least, let us deal with a misapprehension, namely that scale track is hard to lay. This is not so: the rail section being small, it is readily flexed, but at the same time it must be remembered that due to these accurate dimensions reasonable care must be exercised in laying, and above all in preparing a true baseboard surface to receive it. This, of course, is the basis of all successful railway modelling, regardless of scale or standards.



Easy curves, convincing scenery, accurate rolling stock and, above all, scale two-rail track give that all-essential touch of realism to this photograph of Ken Northwood's North Devonshire Railway.

CLUB NOTICE BOARD

featuring popular personalities and society news

Personality Parade No. 55

E. I. Vaughan

Manchester M.R.S.
Stephenson Locomotive Society
" S " Gauge Society
Gauge " 1 " Association

Ivor Vaughan's first recollection of the prototype was of Birkenhead, Woodside, about 1913. His favourite locomotives were the " black ones " which began his leanings towards the L.N.W.R., though his interests have broadened through the years.

His first models were the famous 2mm. (almost) scale Precursor and coaches and the legendary half-crown Cardean, but later he began modelling on his own account, beginning with cardboard models from details in the *B.O.P.* He had an " O " gauge layout in the early twenties but by 1927 was experimenting in " O " fine and " HO." In 1934 he began a gauge " 1 " line in the garden, but this was dismantled when he left home to work in Derby.

He began experimenting in " S " gauge while in the forces during the war, and after his marriage he produced a small " S " gauge layout on a board 8ft. x 1ft. which could be stored in the corner of the living room.

1950 brought a move to Inverness, and while there he began work on signals for the 7mm. scale Midland layout in Derby Museum. This kindled his interest in signalling, and as a change from the " fiddling " 7mm. scale he produced a Midland home in $\frac{1}{4}$in. scale.

Even this proved too small, and brought about a further change to $1\frac{1}{2}$in. scale, in which it is hoped to construct a series of signals from each of the British and Irish railways.

His other interests are railway photography and the collection of " gen " for his detailed signal models.

NOTES AND NEWS

Copy for these columns must be received five weeks before publication.

THE RAMSGATE AND DISTRICT MODEL CLUB

The above club has now settled in its new headquarters at the rear of the fire station in Effingham Street, Ramsgate. The entire premises have been rewired for electricity and one end of the " L "-shaped structure has been partitioned off to form a cosy library-cum-council room. There is also a spacious room containing the " OO " layout, giving a three-foot clearance around each side, also a roomy workshop complete with lathes, benches, compressed air equipment, tools and materials, sufficient to gladden the heart of any model worker.

There is a keen spirit among the members, the number of which is gradually increasing.

The club's premises are open every Wednesday and Friday evening from 7.30 p.m. to 9.30 p.m. and all who are interested in modelling or handicrafts are specially welcome. A cordial invitation is also extended to members of fellow clubs should they care to pay a visit.

ALFRETON MINIATURE RAILWAY CLUB

Since last reported, the club has increased in size and we are glad to have among us two new members who are constructing a 4mm. scale stud contact line—hitherto two-rail has held sway. We also have a member experimenting with " TT " gauge.

As the club does not possess its own premises our monthly meetings are looked forward to by all so as to hear the latest developments on each member's layout or sphere of activity.

Meetings will be held on Wednesdays, July 18 and August 15, at the Arts Centre, Chesterfield Road, Alfreton, Derby, at 7.30 p.m., and all interested persons are cordially invited to attend. Hon. secretary: J. R. Botham, Lonsdale, Pennine Avenue, Riddings, Derby.

ILFORD AND WEST ESSEX M.R.C.

Our first exhibition has come and gone, we hope successfully in the eyes of its visitors. To us it was a surprise, in that the attendance was much larger than we had thought likely, and we were duly gratified.

We now have a respite. Since March 1, twenty-three days have been occupied by exhibitions—at the L.T.S. centenary, at the M.R.C. show, and then our own—during which time the layout has put in some miles of running, with very little maintenance. Peace now reigns for a while, but we still have room for new members of all gauges (the models, not the members).

Our annual general meeting was held on May 16, when Mr. C. H. Gwyther was installed as president for 1956-57.

NORTHOLT MODEL RAILWAY CLUB

The club has arranged its annual general meeting at the Community Centre for Wednesday evening, July 11, at 8 o'clock and the committee would appreciate full attendance of active members and invite all past members to join us in a general review of our activities and a discussion on our plans for the future.

All our friends are reminded once again of the club's annual exhibition to be held on September 8 at the club premises.

Inquiries to: Mr. R. G. Turner, 5 Craven Avenue, Southall, Middlesex.

TWO-Os MODEL RAILWAY CLUB

At the second annual general meeting of the Two-Os Model Railway Club, H. Sydney Cox was re-elected secretary and Peter H. Ranson treasurer. It had not been possible to record a great deal of progress, although it was thought that some had been made.

The chairman expressed the need for bigger premises as soon as possible. He mentioned that an advertisement had been sent to the local press and that soon some would be left at the local shops in the main road running through Lewisham and Catford.

Exactly fourteen days after the annual general meeting, members of the club went along to an address in Hither Green Lane to view a room over a garage. This was encouragement, as when we formed we had hoped to serve the Lewisham and Catford areas, and now we stood a better chance of doing so.

At the time of writing we are meeting every Wednesday evening to clean generally and redecorate our new club room.

The club welcomes inquiries from interested readers and any interested in joining need not feel that there is any obligation. Such people should write to BM/HMSL, London, W.C.1. We are affiliated to the Association of Model Railway Clubs.

MACCLESFIELD SOCIETY OF MODEL AND EXPERIMENTAL ENGINEERS

The small-scale railway section of the above society has now been founded for just over twelve months.

Considerable progress has been made on the " OO " gauge two-rail layout which is being constructed as the centre-piece for our forthcoming exhibition in October. When completed it will cover an area of 16ft. x 12ft.

Anyone interested will be welcome at the workshop on Monday or Thursday evenings.

HITCHIN AND DISTRICT M.E. CLUB

The official opening of the outdoor passenger track ($3\frac{1}{2}$in. and 5in.) will take place on Saturday, July 14, at 3 p.m. Neighbouring clubs welcomed with suitable live steam locos. Secretary: Mr. G. J. Clark, 35 Station Road, Lower Stondon, Beds.

JULY MEETINGS

BIRMINGHAM MODEL RAILWAY CLUB
5 16.5mm. layout construction.
11 Diesel railcar trip to Lichfield. Meet New Street Station, 7.15 p.m.

FARNBOROUGH MODEL RAILWAY CLUB
18 Visit to Ford's motor works.

FYLDE MODEL RAILWAY SOCIETY
10 Points and point motors. Mr. S. Hall, Mr. J. Donaldson.

HODDESDON AND DISTRICT MODEL RAILWAY SOCIETY
11 Visit to club member's layout (P. Fieldhouse).
25 Layout construction.

MODEL RAILWAY CLUB
5 Lecture: P. J. Kelley. " More Swiss Photographs." At Caxton Hall, S.W.1.
19 Track night. Other groups.
26 Lecture: Geo. Driver. " Cardboard Rolling Stock Construction." At Caxton Hall, S.W.1.

WIMBLEDON MODEL RAILWAY CLUB
11 Models under construction night.

NEWS AND VIEWS OF TRADE INTEREST

TRADE

HAMMANT & MORGAN "SAFETY" MINOR POWER UNIT

THIS new version of a popular power unit incorporates several new and valuable developments. The most important of these is the provision of a three-core mains lead, so that the unit may be

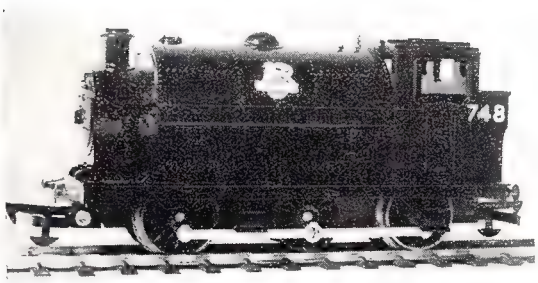
Hammant & Morgan "Safety" Minor Power Unit.

correctly earthed when connected to any three-pin plug and thus made entirely safe. A one-knob reverse/speed control is fitted, with a small selection switch to enable the operator to select a low- or high-resistance range to suit the motor under control. Three outputs are provided, one 12-volt D.C. controlled, one 12-volt D.C., and one 16-volt A.C. uncontrolled. The maximum output from all three tappings combined is 1½ amps, and by the addition of separate controllers up to three locomotives, *provided they are of low current capacity,* can be operated by this unit. A cut-out protects the controlled D.C. output. This is set to 1½ amps. This most excellent unit costs 54/-, and is also available with vari-wave control at 66/-.

TRI-ANG SADDLE TANK

The long-heralded Tri-ang "OO" gauge saddle-tank locomotive has now appeared. It does not set out to represent any particular prototype, but is generally representative of modern industrial locomotive practice. The performance is superb; there is no other word for it. Control at slow speeds was excellent—in fact we found it necessary to reduce the voltage before we could bring the model tested to a stop by means of the controller resistance. Moreover, the motor noise at all speeds was negligible, while the limitation of loads was due entirely to lack of adhesion, but in this model there is plenty of room for additional ballast.

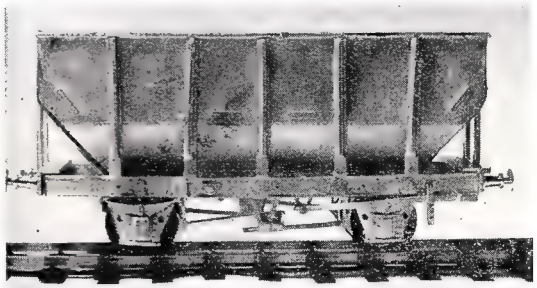
It would appear that the secret of this very fine performance lies in the motor bearings, which were modified some few months ago. Certainly the performance of several recent Tri-ang locomotives has borne this out, as without exception they have behaved in a similar fashion. We very much doubt if even the most exacting purchaser can find fault with the performance of these models.



Tri-ang 0-6-0 ST.

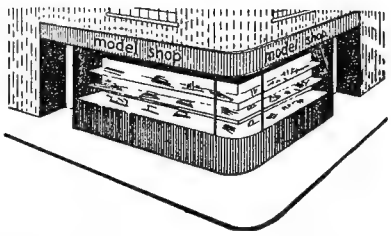
K's 24½T HOPPER WAGON KIT

We illustrate below the latest addition to K's range of wagon kits, a model of the latest B.R. 24½T hopper wagon, which retails at 7/5, but does not include wheels and couplings. Assembly is very simple indeed, only a little cleaning is needed, for which a sharp knife suffices, and the kit can be completed by cementing; Pafra is recommended by the manufacturers for this purpose. The model is then ready for painting and lettering. As with the kits reviewed last month, detail on the castings is excellent, and once more these provide a kit producing a fine model of a difficult prototype, in 4mm. scale, suitable for "OO" or "EM" gauge wheels.



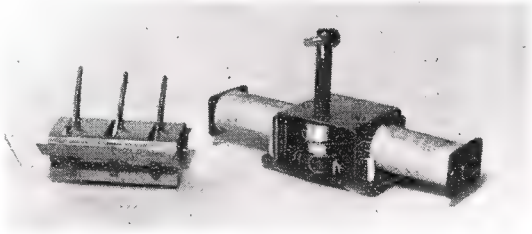
"K's" 24½T hopper wagon kit assembled.

WINDOW



CALEY SOLENOID MOTORS

The Caley solenoid motor and switch, which we illustrate below, will operate off a very low current supply. The motor incorporates a cut-off switch, which interrupts the supply to the coils once the throw is completed, thus eliminating the need for special passing contact switches at the control panel, a simple changeover switch being sufficient. The switch illustrated is of this pattern and, as can be seen, contains three levers. Any number may be used together to form a lever frame. As the switch has permanent contacts it can also be used to control colour light signals if so desired. The motors and switches are made by the Caledonia Model Co., 5 Pitt Street, Glasgow, C.2. The motor is reasonably priced at 12/6, the lever unit at 7/6.



Caley point motor and switches.

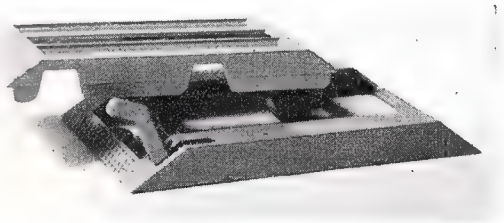
"WEE WORLD" HYDRAULIC CAR RAMP

Although not specifically designed for use with "OO" layouts, several of Ward's "Wee World" models can be used as lineside accessories. The latest addition, the hydraulic car ramp, is certainly one of these, and provides a useful fitting for the model garage. Our illustration shows it in the raised position; when closed the ramp lies flush with the upper surface of the base. At the modest price of 1/3 it will make a welcome addition to any layout.

"AGRIPPA" SCREWDRIVER

We have received from Ellemsee Accessories a sample of their new "Agrippa" screwdriver, which is of particular use to modellers. Its novel feature lies in the fact that the blade is formed by two pieces of spring steel, which, when closed by pressing the end of the tool, fit snugly into the screw slot, and spring outward to hold it firmly while it is inserted into its hole and screwed in place. It is, we find, an invaluable aid when inserting small screws into those otherwise inaccessible holes in the centre of locomotive chassis and similar places. It does, however, seem to us that it would be inadvisable to use the naturally delicate spring blades to tighten large screws, for which a solid blade is obviously more suitable, the Ellemsee screwdriver being used for the all-important task of inserting the screws in place. It is, we consider, a useful addition to any tool kit.

Ellemsee Accessories would be pleased to hear from any wholesalers interested in distributing this tool.



"Wee World" hydraulic car ramp.

REVELL KITS

Revell enthusiasts will be pleased to know that a British company has been formed named Revell (Great Britain) Ltd., and a London office and showroom is now in existence. The managing director of the new company is Mr. Jack Robb, and the sales director Mr. John Kinstead.

Production of Revell Authentic Kits in this country is planned for an early date. The two directors have just returned from a visit to the parent company of Revell Inc. in Los Angeles after making an intensive study of methods of production, which will ensure the same standards and quality as the American made kits.

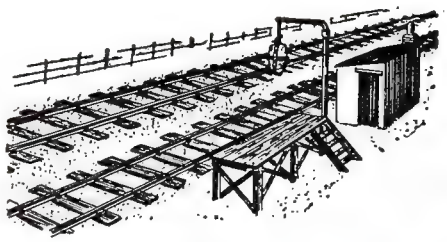
Future advertisements in the press will give details of the models which will be available. Messrs. Bradshaw Model Products Ltd., of Hove, will continue to distribute Revell Authentic Kits to the hobby and toy trades.

THE ABOLITION OF THIRD CLASS

On June 3 this year third class ceased to exist on British Railways. The change was purely nominal, as, to obtain uniformity with all continental railways, the old third class now becomes second—restoring this old name after almost half a century of virtual disuse except on boat trains and a few specialized services. As no indication of class has appeared on other than first-class carriages for several years, the only effect will be that new stocks of tickets will have the changed title, and fresh signs at ticket offices and elsewhere will be installed. No alterations to the rates will take place.

READERS' LETTERS

This space is reserved for the free exchange of readers' ideas and opinions



THE IRISH INTERNATIONAL RAILWAY AND TRAMWAY SYSTEM

The appearance of the first article by Mr. C. L. Fry on his "Irish International Railway and Tramway System" happened, most happily, to coincide with a business trip to Dublin, and through the courtesy of Mr. and Mrs. Fry I was able to spend a most fascinating evening at their home.

Just how rewarding that evening proved to be would take up too much space to recount. Suffice it must be to comment that Mr. Fry's own account of his layout is an extremely modest one and gives only the slightest idea of the tremendous work and patience that have gone into its construction. For the whole layout is not only of great historical interest and accuracy, but also rich in the most painstaking detail. The detail work on both locomotives and rolling stock is quite amazing and I only wish that Mr. Fry could be persuaded to show some of his work at the Model Railway Exhibition next year.

I would also like to confirm the realism of the smoke which puffs from most of the locos in perfect synchronization with the running movements; also the ingenious way in which the sounds of the trains running are amplified through hidden loudspeakers concealed about the room. This is particularly effective while trains are passing over the realistic model of the Boyne bridge.

Mr. Fry has a very long waiting list of those anxious to avail themselves of the opportunity of seeing the system in action. However, if you are in Dublin and are lucky enough to have your name called, you will be more than repaid, as Mr. and Mrs. Fry make one feel very much at home and Mr. Fry's personal reminiscences are as interesting as the results of his handiwork. I can only hope that the pleasure that is given to all who watch Mr. and Mrs. Fry operating the elaborate system is some reward for all their skill and patience.

PETER TANNIER.

HOW (NOT) TO LAY TRACK

Modellers of works or factory branch lines and sidings are probably unaware of the extreme decrepitude of some sidings coming under this category. In some of the narrow gauges one is quite used to finding the rails buried beneath a sea of mud, held together by grass; and as to gauge, what do three or four inches matter?

Standard-gauge lines, where loads are heavier and the horse or man is not so often called upon for the tractive effort, are seldom allowed to attain such conditions of neglect. Imagine, therefore, the extreme case illustrated here, on a branch line almost half a mile in length over which mechanical traction *is* used! The modeller would find it more difficult

[you should have seen my earliest efforts, James—C.J.F.] to reproduce this section than attain the highest flights of perfection. Before anyone wants to be able to say he has really imitated an existing lime-works feeder, the following conditions must be met:

1. The gauge must vary at all times.
2. The rails must all be bent and the heads preferably split and worn.
3. Sleepers may be used at or near joints, but there is no need to have more than one in the middle of a rail length.
4. Normal sleepers are barred; old wagon headstocks or fencing posts of differing lengths are more suitable.
5. Any attempt at levelling or aligning the track is forbidden.
6. Alternate lengths may be laid with differing weights of bull-head or flat-bottom rail to suit materials on hand, and a section with one length of each on either rail is permitted.
7. There must be no ballast but plenty of "nature."
8. Part of the line may be protected by a broken wire fence, but the rest must make its way drunkenly across the fields, through a herd of cows, and in certain places the rail-heads must disappear beneath the turf almost altogether.
9. Tie-bars may be used instead of sleepers, but they must be bent and seldom fixed.
10. Fishplates may be held by one bolt.

Well, there's the specification. And if you can get an unsprung model wagon over it without derailment rip it up—you've cheated!

(The prototype is to be found in the Clwyd valley, North Wales. It is worked by a Simplex petrol rail-tractor, hauling one wagon at a time.)

J. I. C. BOYD.

Brooklands, Ches.

ADDENDA

I was delighted to see the drawings in two recent issues of the RAILWAY MODELLER and, in case it may help other readers, I append some further notes.

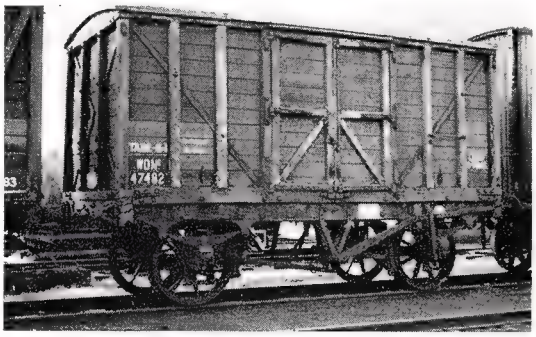
I.O.M. RLY. No. 15.

"Caledonia" is kept in Douglas sheds, and, to the best of my knowledge, has not been in steam during the last five years or so. In common with all surviving Manx locos, No. 15 has been repainted since the war in the company's new standard red livery.

"FROM SIR ERIC'S NOTEBOOK"

These pre-group drawings have given great pleasure, and it is sincerely hoped that more are to come in the future.

I was lucky enough to find an ex-G.N.S. van recently and enclose a copy of the photo taken. Some variations will be seen from Sir Eric's drawing—the ends, for instance, are plain. The brake-gear particularly shows what can happen to these older



vehicles. On the far side can be discerned the original single-lever version, while on the near side is a more modern addition. Even on this the brake shoes are of different patterns!

D. ODABASHIAN.

London.

CLOCKWORK SURVEY

Down in the forest something is stirring.

Encouraged by the efforts of other "minority" groups in The Hobby, the clockwork addict—normally a retiring, quiet-mannered animal—is rearing its head and wants to know "what about me?" Its voice is getting more and more persistent, and it will not be put off.

Merely grumbling will not get us anywhere, so let us face facts and see if something constructive can be done for those who see in clockwork the ideal form of motive power for their railways. One firm after another since the war has abandoned clockwork, until now we are left with an extremely limited choice, and when these firms are tackled they answer: "There is no demand." Well, they are not in business for the sake of their health, and it is unreasonable to expect them to waste money on an unsaleable product, so it is up to us to convince the trade that gauge "O" clockwork is *not* a dead duck. If we are to do this, we must put up a good case, and I am suggesting a way of doing this.

I am inviting every standard gauge "O" modeller who is at all interested in clockwork locos to write to me, briefly giving details of what sort of engine he would be prepared to buy supposing the trade offered to produce *one* really presentable clockwork loco. I will undertake to summarize all the answers received—provided they are sufficiently encouraging—and make a full report to the trade. It is even possible that this might be done through the newly formed Gauge "O" Guild.

My own suggestion—merely as a guide—is that possibly the most universally acceptable engine would be a tank engine with a controlled mechanism, sufficiently large to haul goods or branch-line passenger trains, yet not too large for shunting. This would make it a proposition for electric layouts as well as clockwork. I am aware that until recently such a loco has in fact been on the market, but it was so unlike any known prototype in outline that its very appearance was against it.

So come on, everybody! Let us see just what the feeling is on this subject—and I will do the paper work. Write to me at 8 Adelaide Road, Ipswich, Suffolk. There is no harm in trying, is there?

Crewchester Model Railway. JOHN L. RAY.

BOOK REVIEW

MOUNTAIN RAILWAY GUIDE TO CENTRAL SWITZERLAND, by Cecil J. Allen (Ian Allan, 3/6).

This book is a must for anyone, railway enthusiast or not, who intends to spend a holiday in Switzerland, for, as its title suggests, it is essentially a gazetteer describing the many rack railways, funiculars and suspension lines in central Switzerland. Each line is listed separately with full technical data as to length, duration of journey, altitude and total rise, together with a general description of the line and the country through which it passes. In addition there is a certain amount of general information in the earlier chapters concerning travel in Switzerland. The first sentence reads: "The general principle of Swiss travel is that, the greater mileage covered, so much the cheaper is the rate per mile to the traveller." This seems to us to be an excellent principle worthy of extension elsewhere.

TALYLLYN COLOURED POSTCARDS

The latest Talyllyn postcards issued are a set of six coloured views of continental size (15 x 10.5 cm.). The views are as follows:

TRC 1 "Sir Hadyn" at Wharf Station, Towyn.
TRC 2 "Edward Thomas" at Wharf Station.
TRC 3 "Sir Hadyn" at Rhydryonen Station.
TRC 4 "Sir Hadyn" at Dolgoch Station.
TRC 5 "Douglas" at Dolgoch Station.
TRC 6 "Douglas" at Quarry Halt Siding.

The coloured views are 6d. each.

Another black and white postcard is now available, No. TR 31, showing "Edward Thomas" in its present guise with side buffers and centre coupling at 4d.

A new version of the guide, with several fresh illustrations, is now available, price 1/-.

Copies can be obtained from the Publicity Officer, K. Cope, Brynglas, Beckman Road, Pedmore, Stourbridge, Worcestershire, or from Edward Exley Ltd. Postage is extra on all items.

ADVICE BUREAU

The Bureau is at your disposal to assist you with your problems. The service is free, individual and personal, but we reserve the right to publish any query we consider to be of interest. The advice given is based on the experience and opinions of our staff.

Queries should be addressed to the Peco Technical Advice Bureau, Pecoway, Station Road, Seaton, and should be accompanied by a s.a.e. and coupon on page vii. We regret that we cannot prepare special designs for individual readers.

I have been thinking about trying model railway building as a hobby. I have no workshop of my own, but I am a toolmaker, so I can always use my firm's machines out of working hours.

I have read a few magazines and I find that different firms have different measurements for their models, rails, etc., and now I am wondering if you could help me by telling me if I can use, say, a locomotive made by one firm and rolling stock by some other firm, and someone else's rails; or do I have to get everything from one firm?

C.R.S., WALSALL.

The question of differing wheel standards in "OO" gauge is a fairly complicated one, and for further details we would refer you to the comprehensive list of leading dimensions published in the December 1955 Advice Bureau. We would recommend that you adopt the B.R.M.S.B. standards, then all rolling stock to B.R.M.S.B. and N.M.R.A. standards will operate on your railway.

Furthermore, these are the accepted scale standards, which we feel sure that you as a craftsman will wish to use. The majority of proprietary stock will not operate on a B.R.M.S.B. layout without some conversion. Here again you should have no difficulty in carrying out these conversions, as you are a toolmaker with access to a well-equipped machine shop.

It would, of course, be impossible for us to list here the products currently available for B.R.M.S.B., or to go into the differing types of proprietary equipment available.

I am thinking of building an "OO" layout, 10ft. x 4ft., in a garage. I will be using Hornby Dublo tanks. I should like to know the minimum distance in which a height of 3in. above baseboard level could be obtained without using too steep a gradient. Also, is it advisable to construct an embankment on a 1ft. 3in. radius curve? If so, what should this be made of?

P.D., GRAYS.

As a minimum gradient we commend 1 in 30 for general adoption. This means that to climb three inches you need a lineal distance of 7ft. 6in. However, if you wish to construct a gradient on a 1ft. 3in. curve, which already exerts considerable resistance to the train, the gradient should be eased to about 1 in 45.

The construction of embankments is purely a question of scenic work, and may be effected in many ways. For further details we would refer you to our booklet *Scenic Modelling*, which covers the basic grounds of scenic work.

We do, however, wonder if you are referring to superelevation, where the outer rail is raised slightly above the level of the inner rail. This has not been found necessary on 1ft. 3in. radius in "OO" gauge, although it has its advantages in that it is thus impossible for the lower outer rail to get lowered, which could lead to trouble when running at high speeds.

What is the best method of joining tracks across a lifting section?

L.T.W., CHINGFORD, LONDON.

To join rails across a lifting section, we recommend that they be fixed firmly to the baseboard framing, preferably by spiking direct to the framing. The baseboard should then be firmly joined by some simple fixing. We ourselves use brass flap-back hinges from which the hinge pins have been removed and replaced by the close-fitting wire pin. Finally, the hinges on the lifting joint must be placed above the level of the rails. For further details and sketches see "Peco Topics," May 1954.

I have a Graham Farish Prairie tank engine, the electric motor of which I have unfortunately damaged beyond repair. Would you please let me know if there is a suitable motor on the market to replace this? If not, what do you advise doing to put this engine to use?

A.G.S., LINCOLN.

We regret that we cannot afford any detailed advice, as we do not know the extent of the damage to your locomotive. If it is only the case of the motor being burnt out, or physical damage, while the rest of the locomotive and underframe is in good order, then a standard "OO" motor may be substituted. Alternatively, an entirely new chassis will be needed.

My problem is how to stop my track going rusty. I have the use of a small bedroom, which also houses the hot and cold water and airing cupboard. I have solved some of the trouble by cleaning up the lines and giving them a coat of copal varnish. This, of course, did not solve how to protect the running surface. Recently a friend wondered if copper sulphate might be the answer. Could the top surface of the track be treated without dismantling, and would it be effective? If this is worth experimenting with, could you please tell me how to go about it.

The January issue carried an article on "Track Lubrication," by Birkonian. I am afraid I do not know what spring drive means! However, Birkonian speaks freely of rusting and rusty fungus, so it seems we may have something in common.

C. H.B., BIRMINGHAM.

We regret that we have never heard of any successful method of preventing rust on the top surface of steel rail, and in our experience the only answer is regular cleaning with the Peco rail cleaner. However, prevention is better than cure, and for this reason in a location such as yours nickel-silver rail seems to be the only long-term answer.

Spring drive is a term which has been adopted in recent years by "O" gauge workers using clockwork mechanisms. We believe that the main reason is that today clockwork is very much associated with toy trains, hence preference for the alternative term. Furthermore, in our own heading we felt that the term "clocwork enthusiast" might be a trifle ambiguous.

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"SCENIC MODELLING" by P. D. Hancock, 1/9. The secrets of the art by an expert. Peco Technical Advice Bureau, Pecoway, Station Road, Seaton.

E. B. LENG, 7 Norland Square, London, W.11. Clearance offer. Power units. H. & M. De Luxe Minor 50/-. Kirdon Minor 20/-. H & M controllers 12/6 each. H & M cutouts 4/- each. Post extra.

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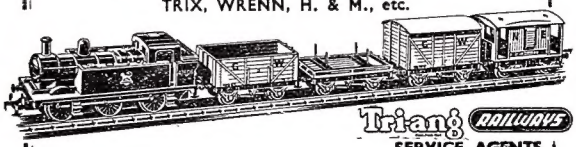

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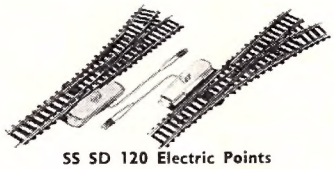

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